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Scottish Birds is the quarterly journal for SOC members, and is published in March, June, September and December annually.

Containing original papers relating to ornithology in Scotland, topical articles, bird observations, reports of rare and scarce bird sightings, alongside branch and Club-related news, our members tell us that *Scottish Birds* is one of the key benefits of belonging to the SOC. Its different sections have been developed to meet the wide needs of the birdwatching community, and the publication is renowned for its first-class photography.

An archive of the journal is available on the SOC website, where links can be found to other Club publications including the *Scottish Bird Report* online.

More about the SOC...

On the one hand, a birdwatching club. Established in 1936, the Scottish Ornithologists' Club (SOC) is Scotland's bird club with 15 branches around the country and a growing membership of over 3,000. Through a programme of talks, outings, conferences and other events, it brings together like-minded individuals with a passion for birds, nature and conservation.

On the other, a network of volunteers across Scotland, gathering vital, impartial information about our wild birds. The data we collect is made available to conservationists, planners and developers, and is used by organisations such as the RSPB, as one of the first points of reference in informed conservation planning.

Club Headquarters can be found at Waterston House, Aberlady, overlooking the scenic local nature reserve. Housed within, is the George Waterston Library, the largest ornithological library in Scotland, and the Donald Watson Gallery - one of the jewels in the Waterston House crown, exhibiting wildlife art all year-round.

Join us...

As well as receiving *Scottish Birds* every quarter, SOC members have access to a programme of talks and outings across Scotland and affiliation to a local branch of the Club. New members will receive a welcome pack on joining, plus a thank you gift if paying their subscription by direct debit.

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For more information about the Club and its activities, including details of how to join, please visit www.the-soc.org.uk or contact Waterston House on 01875 871 330, or email membership@the-soc.org.uk

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Plate 159. Mark Lewis, Girdle Ness, Aberdeen, North-East Scotland, January 2019. © *Claire Bearn*

Foreword

I've always been a huge fan of *Scottish Birds*. It really delivers something for everyone; fascinating studies of Scottish birds, mouth-watering rarities, Club news, all so easy to read and with great photos. As such, it's a real privilege to provide a foreword for the journal so soon after taking the position of SOC Birding and Science officer.

I'll leave any questions about science for the moment, but what is birding? A funny question to ask, perhaps, but certainly not one with an easy answer. To me, birding is so much more than a hobby; it's a lifestyle, with its own etiquette, its own language and its own community. That community spans everything from the most passive involvement, such as the casual garden bird observer, to the nerdiest nocturnal sound recorder, getting a thrill from the calls of distant Redshank passing overhead. Guilty as charged!

We can engage with birds how we want, and when we want, and we can all call ourselves birders. No matter how we approach it, however, there is something we all have in common: we can contribute towards improving our understanding of Scotland's bird life. Our birding data can produce population trends as robust as those generated by BTO Breeding Bird Surveys, it is at the heart of projects such as WeBS and it fills the pages of every annual local bird report. Between us, we generate invaluable information on all of Scotland's birds.

One of my first tasks will be to work on a project initiated by the Birding and Science Committee, examining what the key knowledge gaps are for each of Scotland's regularly occurring species, and updating what we knew at the time of publishing *The Birds of Scotland*. Something as simple as sharing the data from our daily birding may well have filled some of the gaps that were highlighted back in 2007.

We can do great things, but as always, we could do more. Looking ahead, one of the most exciting opportunities of my role is to be working with local bird recorders, BirdTrack partners and of course, birders, to get the very best for conservation out of our day-to-day enjoyment of birds. I look forward to working with you all.

Mark Lewis,
SOC Birding and Science Officer

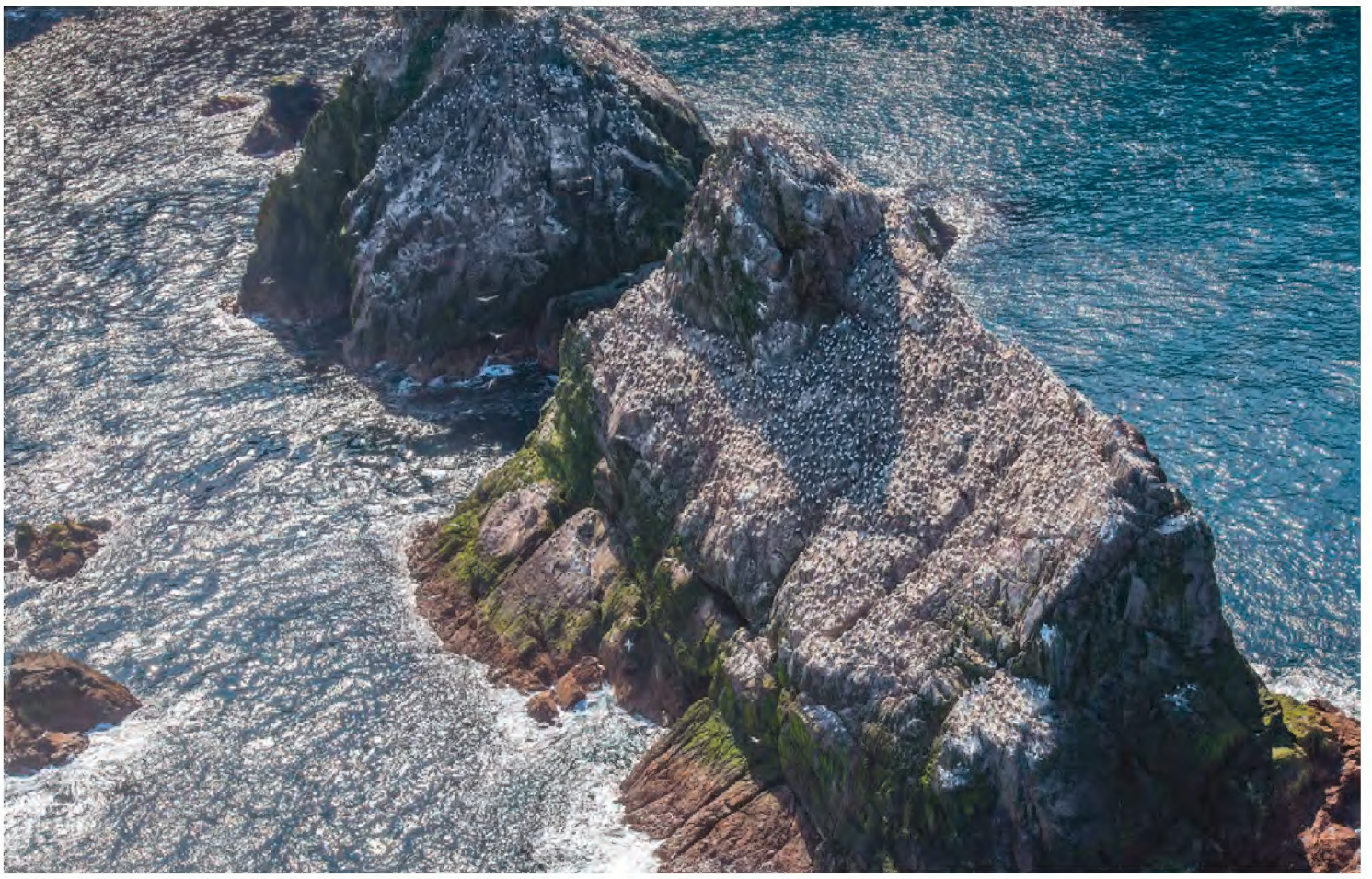

Plate 160. Fair Isle. Aerial view of the Outer and Inner Stacks, Fair Isle on 25 August 2017. Many of the Gannets here will not be visible from the land (Figure 2). © *Historic Environment Scotland*

First aerial surveys of Gannets on Fair Isle and Foula, Shetland, in 2017

S. MURRAY, W.T.S. MILES, D. PARNABY, D. COWLEY & M.P. HARRIS

An aerial survey of the Gannet colony on Fair Isle on 25 August 2017 found 4,776 apparently occupied sites. This compared with a combined land and sea count of 3,882 apparently occupied nests in June–July. A land survey on 27 August counted 2,727 apparently occupied nests; allowing for earlier losses of nests and a few young having fledged, this count converted to 4,195 apparently occupied sites. The difference between the aerial and the other counts was probably due partly to different counting units. However, counts of individual Gannets in the photographs and during the August land count suggested that about 15% of the population may have been invisible from the land. The aerial count of Foula gave 1,465 apparently occupied sites and confirmed that numbers here are increasing at a far slower rate than those on Fair Isle.

Introduction

The Gannet *Morus bassanus* is a familiar species around Scotland's coasts and islands. There is a long history of counting Gannets at their breeding colonies stretching back more than 100 years (Gurney 1913, Fisher & Vevers 1944, Murray & Wanless 1986, Nelson 2002, Murray *et al.* 2015). These counts have documented a relentless increase in both the number of breeding pairs and the number of breeding colonies with the latest totals for the North-east Atlantic put at 526,000 pairs and 54 colonies (Murray *et al.* 2015). However, over time counting methods have changed markedly. J.H.

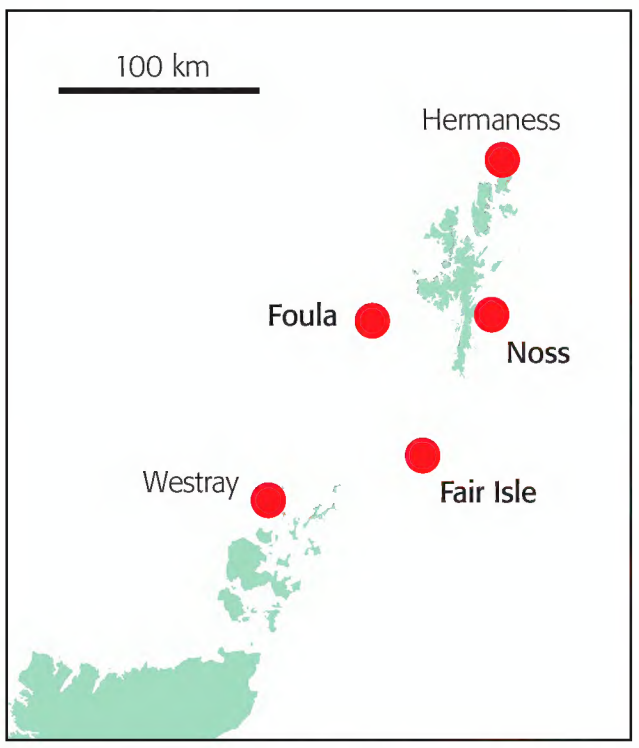

Figure 1. Gannet colonies in Orkney and Shetland.

Gurney prepared for his pioneering counts at the start of the 20th century by obtaining a photograph of the largest goose farm in Britain (8,000 birds) to familiarize himself with what large numbers of white birds looked like (Gurney 1913). Initially, numbers were assessed directly by visiting colonies and counting or estimating the numbers of nests, preferably from the land but sometimes out of necessity from the sea. As numbers have increased this method has become progressively more difficult since, in all but the smallest colonies, it is now impossible to view all the breeding areas from safe vantage points. In any case combining counts made from different viewpoints is inherently difficult and risks overlooking or double counting parts of the colony. These problems are exacerbated when some areas have to be counted from the sea. Fisher & Vevers (1944) were the first to make extensive use of aerial photography that overcomes many of these problems and leaves a legacy of photographs that can be examined repeatedly and at leisure.

During the last survey of Scottish colonies in 2013–14, 10 of the 14 major colonies were counted by aerial survey (Murray *et al.* 2015). The colony on Westray, Orkney was photographed from the air in 2016 (Murray *et al.* 2017) leaving three colonies, all in Shetland, to be photographed - Fair Isle, Foula and Noss. An opportunity to fill in these gaps arose when Historic Environment Scotland (HES) flew archaeological surveys across Shetland on 25 August 2017 and were also able to photograph these three gannetries. Counts of Gannets are best made between late May and late July when birds have eggs or small chicks so the HES survey took place well outside the recommended counting period. However, given that these colonies had not been surveyed from the air previously, the survey still provided useful information about the feasibility of aerial photography. Moreover, since the normal annual land and sea monitoring count by Fair Isle Bird Observatory Trust (FIBOT) was made in June/July 2017 and a land count at Fair Isle was made two days after the aerial survey in August, a comparison of aerial and land/sea methods could be made at this colony.

Methods

Aerial surveys

All cliffs on Fair Isle, Foula and Noss known to be occupied by nesting Gannets were photographed from a Cessna 172 aircraft using a Nikon D800E digital camera producing images of 7,360 × 4,912 pixels. Flying conditions on 25 August 2017 were excellent, allowing close passes to be made at all the colonies with no concerns about turbulence. Fair Isle was photographed at 11:05 hrs (Plate 160). The gannetry here is fragmented which necessitates the aircraft maneuvering to ensure coverage of each of the separate sub-colonies. Because of this the survey took 13 minutes, 100 pictures were taken and coverage was complete apart from part of a small stack close below Yellow Head. The colony on Foula is much more compact and thus much simpler to photograph and the whole survey at 12:19 hrs took only a minute. Coverage was complete except for a small hidden area at the foot of the Kame, which could have had a few pairs. Light conditions were excellent at Foula, with high cloud acting as a natural filter resulting in bright evenly contrast images (Plate 161). The gannetry on Noss was photographed at 13:45 hrs, where glare from the cliff, especially where guano-covered, resulted in images with a very wide range of exposures. The photographs are archived at the Shetland Biological Records Centre, Lerwick.

The unit for counting Gannets from aerial photography is the apparently occupied site (AOS, defined as one or two adult Gannets or a chick present at a site, irrespective of whether nest material can be seen). Counts were made from digital images on a computer screen using either

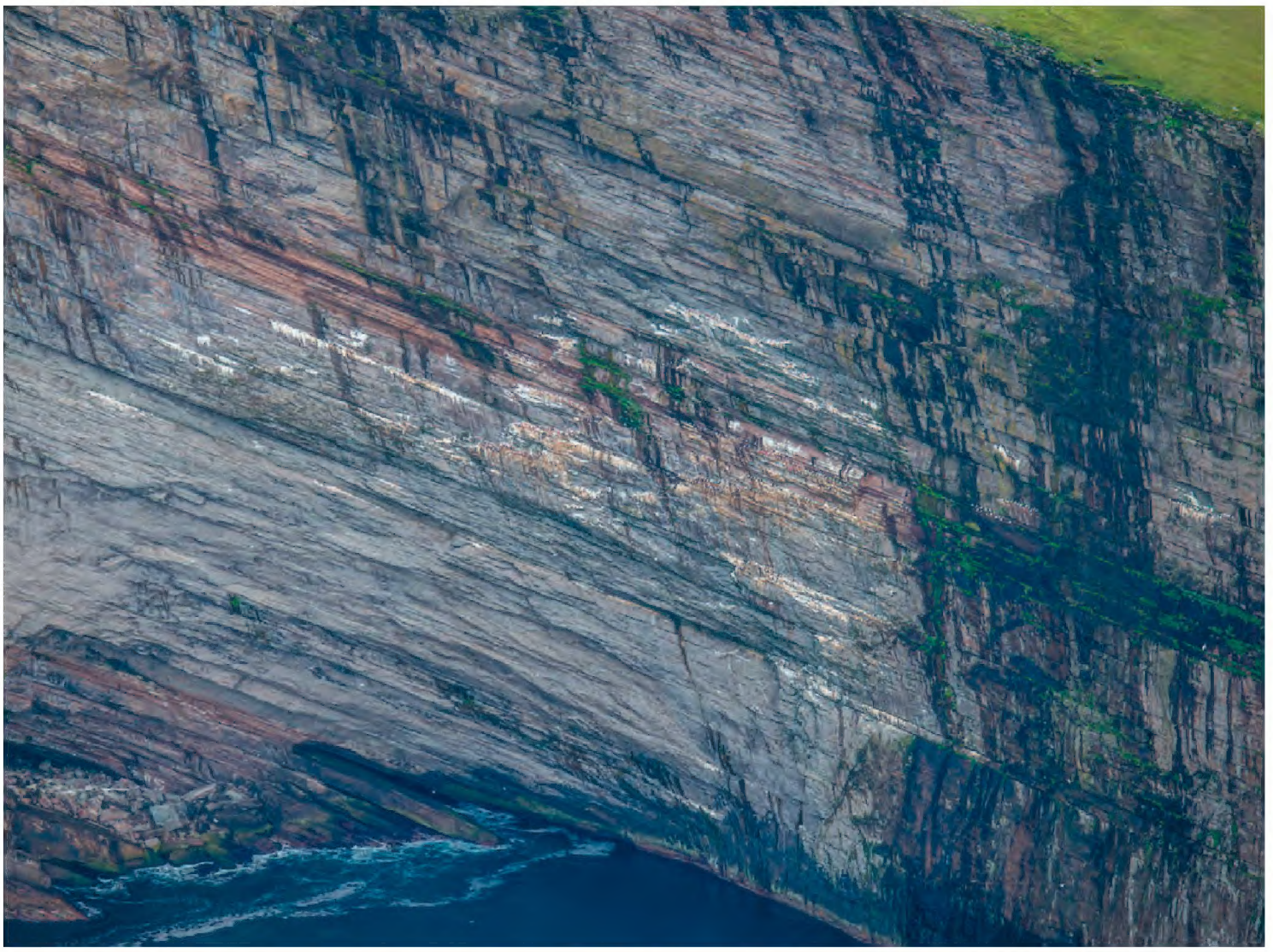

Plate 161. Foula. Gannets at Da Scrodhurdins on 25 August 2017. The grandeur of some of the highest cliffs in Britain, and the difficulties in counting Gannets here from either the sea or the land are self-evident. © *Historic Environment Scotland*

Photoshop or Paint Shop Pro 7 software, which enabled images to be viewed at different contrasts (important in the case of Fair Isle where some parts of the colony were in full sun and others in the shade) and magnifications. On both islands, as Gannets numbers have increased, new discrete areas of cliff have been colonised and counts are reported separately for each area (Riddiford & Harvey 1992, Pennington *et al.* 2004, S. Gear pers. comm.). The boundaries of these areas were marked on the pictures to prevent double-counting

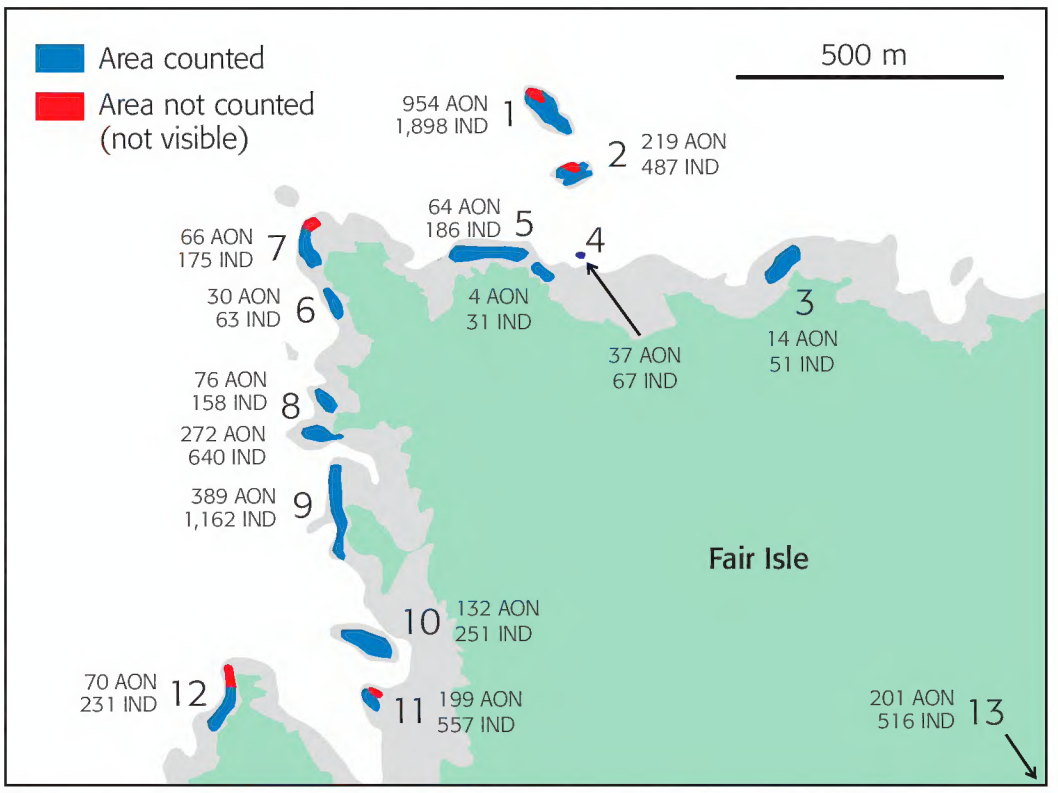
Area counted
Area not counted (not visible)
500 m
954 AON 1,898 IND 1
2 219 AON 487 IND
64 AON 186 IND 5
4
66 AON 175 IND 7
30 AON 63 IND 6
4 AON 31 IND
37 AON 67 IND
3 14 AON 51 IND
76 AON 158 IND 8
272 AON 640 IND
389 AON 1,162 IND 9
Fair Isle
10 132 AON 251 IND
70 AON 231 IND 12
11 199 AON 557 IND
201 AON 516 IND 13

Figure 2. Survey map of north-west Fair Isle showing all Gannet breeding areas except Sheep Rock, counted on 27 August 2017. The areas not counted on the Inner and Outer Stacks are an unknown proportion of the colony shown in Plate 160. Numbers added in bold font (**1** to **13**) correspond to the areas listed in Table 1. AON = apparently occupied nests. IND = total adult-plumaged birds in breeding areas.

and to facilitate comparison with previous and future counts and each AOS blocked out as it was counted.

To prevent subconsciously counting high or low because of prior information, counts by SM and MPH were made independently of each other and without reference to the most recent count. On Fair Isle, MPH made a single count of adult-plumaged birds in areas used for nesting i.e. excluding 'clubs' where prospecting birds congregate.

Land/sea counts

A single count of apparently occupied nests (AON defined as one or two Gannets with at least some nesting material visible) on Fair Isle was made from the land on 14 June 2017. Parts of the colony known to be hidden from land were counted from a boat on 6 July 2017 as part of FIBOT's annual monitoring of seabird numbers (Parnaby *et al.* 2017). A second land count of nests with chicks and apparently brooding adults, and a count of all adult-plumaged birds in breeding areas irrespective of whether they were associated with nests were made in excellent conditions by WTSM between 09.30 hrs and 17.30 hrs on 27 August 2017, two days after the aerial survey (Figure 2).

Results

Fair Isle

The two counts from the aerial survey photographs were 4,942 and 4,609 AOS, a mean of 4,776 AOS (Table 1). This total includes an estimate of ten AOS based on the August land count of the small stack below Yellow Head not covered in the images. A total of 7,469 adult-plumaged Gannets was counted in the breeding areas and very few birds in immature plumage were noted.

The FIBOT land/sea monitoring count made in June/July was 3,882 AON and the land count on 27 August was 2,727 AON. FIBOT's regular checks of nests to determine breeding success showed that on 27 August 32% of nests had failed and 3% of chicks had fledged. These nests would have appeared empty and therefore not included in the August count. Applying these values to back-calculate a total for the middle of the season gives a figure of 4,195 AON which is close to the FIBOT count. A total of 6,473 adult Gannets were counted on 27 August. As for the aerial count on 25 August, very few immature plumaged birds were seen.

Table 1. Counts of Gannets on Fair Isle in 2017.

	Date	25 August Apparently occupied sites(birds)			27 August Apparently occupied nests (birds)	14 June & 6 July
Area	Counter	SM	MPH	Mean	WTM	FIBOT
1	Outer Stack	1,597	1,306 (2,498)	1,452	954 (1,898)	960
2	Inner Stack	492	414 (635)	453	219 (487)	324
3	Sauversteen	95	130 (240)	113	14 (51)	32
4	Yellow Head	37*	40* (46)	39	37 (67)	55
5	Sheena Wheetha	145	143 (287)	144	68 (217)	112
6	Loangie	52	53 (60)	53	30 (63)	33
7	Dronger	185	210 (229)	198	66 (175)	217
8	North Felsigeo	692	675 (1,036)	684	348 (798)	545
9	Toor o' Da Ward Hill	616	604 (939)	610	389 (1,162)	570
10	Matchi Stack	130	138 (186)	134	132 (251)	159
11	Kame o' Guidicum	423	393 (604)	408	199 (557)	479
12	Toor o' Lerness	263	250 (386)	257	70 (231)	175
13	Sheep Rock	215	253 (323)	234	201 (516)	221
Total		**4,942**	**4,609 (7,469)**	**4,776**	**2,727** (6,473)**	**3,882**

* includes 10 for area not covered ** converts to 4,195 allowing for earlier losses and fledged chicks.

Foula

Two independent counts of the aerial photographs gave totals of 1,443 and 1,488 AOS respectively, an average of 1,465 AOS (Table 2).

Table 2. Counts of apparently occupied sites of Gannets on Foula on 25 August 2017.

	Apparently occupied sites		
	SM	MPH	Mean
Hoevda	866	881	873
Da Scrodhurdins	270	280	275
Kame	243	256	249
Da Stab*	64	71	68
Total	**1,443**	**1,488**	**1,465**

*Hidden ground on the landward face of Da Stab had 5 AON in 1986.

Noss

The cliffs at Noss generated considerable glare at the time of photography, especially where guano-covered. While the flight confirmed that the entire gannetry was clearly visible in aerial images, a count was not attempted because of the need to manipulate images, and parts of images, individually to ensure even visibility. Such an exercise could be undertaken iteratively during a count, but processing and counting would be considerably more difficult than when working from more evenly lit images and so counting was not attempted.

Discussion

The aerial survey demonstrated that virtually all the areas occupied by Gannets on Fair Isle, Foula and Noss could be photographed. Foula was the most straightforward colony to survey while the fragmented nature of the colony on Fair Isle meant that the airplane had to remain in the vicinity of the colony for longer to ensure that all the sub-colonies were photographed. At Noss the light conditions at midday when the survey was carried out caused major variations in exposure across individual images due to reflection of light from the cliffs, especially when guano-covered. While this could be done iteratively during a count, this requires experience in image processing, and so was not attempted on this occasion. However, the main point to arise from this experience is that carrying out the survey when even diffuse lighting conditions pertained is optimal. That said ensuring 'perfect' conditions in an environment like Shetland can be problematic.

The aerial counts of Fair Isle and Foula provide the first baseline data on the number of occupied sites and permanent detailed records of the current distribution of the colonies. However, differences in counting units and the lateness of the aerial survey make it difficult to use the aerial totals to assess recent changes in population size compared to previous land/sea counts. Totals of sites are inevitably higher than totals of nests because site holding but nonbreeding pairs that are often at the fringes of colonies, are included. The difference can be further exacerbated because aerial surveys often provide coverage of areas that are difficult to see from the land or sea. As far as we are aware, there has been no critical comparison of counts of AON and AOS made at the same time to provide a robust correction factor. However, opportunistic and imperfect comparisons indicate that counts of sites could be substantially higher than those of nests. For example, a count of 1560 AOS made from photographs of the cliff colony on Westray, Orkney taken on 16 August 2016 was over 50% higher than a count of 1,020 AON made from the land on 30 May 2016 (Murray *et al.* 2017). Similarly, an aerial survey of the colony at Troup Head, North-East Scotland on 30 June 2014 found 6,456 AOS compared to 2,885 AON resulting from a land and sea count on 15–25 June 2013 (Murray *et al.* 2015). Thus, there is nothing unexpected about the large difference between the Fair Isle June/July and August counts of AON and the August count of AOS that cannot be explained by differences in count units and more complete coverage possible from the air.

With these reservations in mind, the 2017 nest counts of Fair Isle indicate that the decline recorded between 2011 and 2015 has been reversed and the population is again increasing rapidly (Figure 3). An indication of possible future population changes can be obtained from the difference between the numbers of sites and nests assuming that this reflects the number of

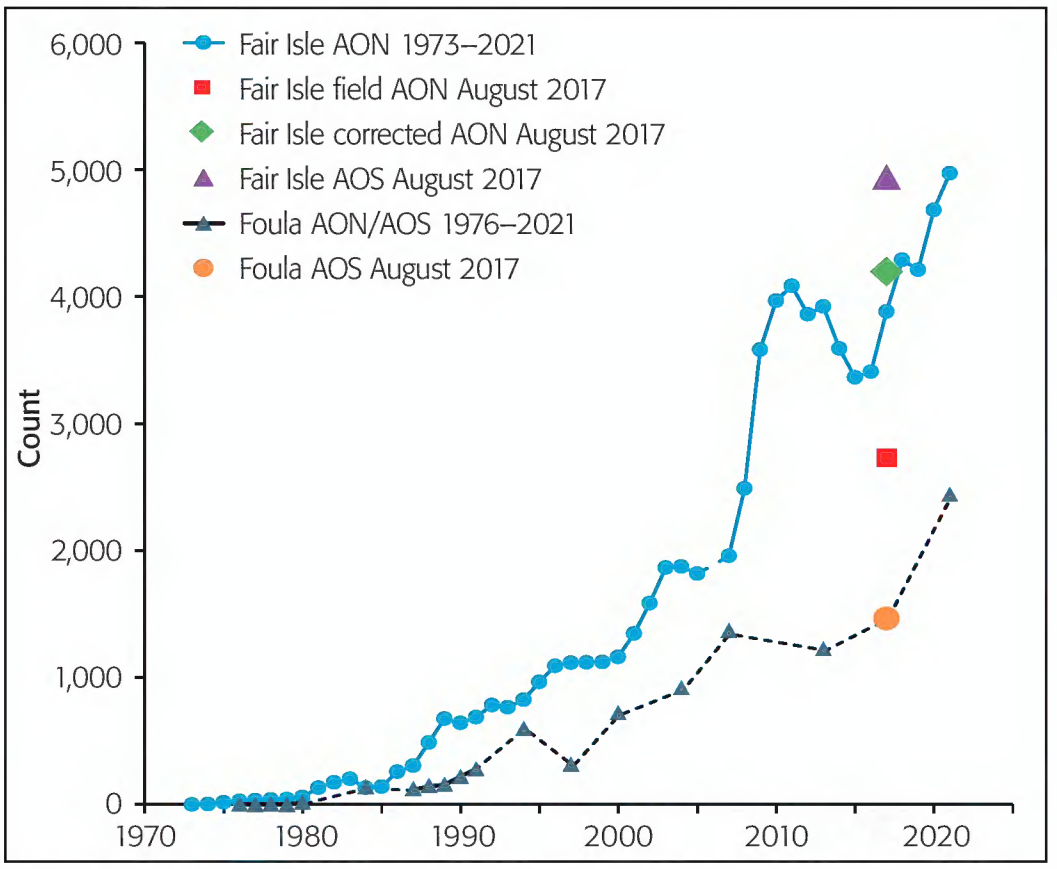

Figure 3. Counts of Gannets on Fair Isle and Foula since they were first colonized. Data from FIBOT Annual Reports, Murray *et al.* (2015), Pennington *et al.* (2004), S. Gear (pers. comm.), and R. Hughes/RSPB (pers. comm.).

prospecting birds holding sites that will subsequently recruit into the breeding population. Figures for 2017 indicate that some 800–900 sites may become incorporated into the breeding population with increases occurring in most parts of the colony.

The colony on Foula is extremely difficult to count from the land because of the lack of safe vantage points (Plate 161). Hence, Gannets have normally been counted from the sea. As at Fair Isle, the count unit in past counts has been AON so assessing the population change since the last count in 2014 is problematic. Taken at face value the 2017 total of 1,465 AOS indicates a small increase since 2014. Given that the count unit was sites and thus would be expected to be higher than a nest count it seemed possible that the population on Foula has leveled off (Figure 3). However, a recent field count of 2,443 AOS in June 2021 by a RSPB Field Survey Team shows that this population continues to increase.

The aerial count of 7,469 adult-plumaged Gannets on Fair Isle in August was 15.4% higher than the land count of 6,473 individuals made two days later. Both counters (MPH and WTSM) recorded virtually no immature Gannets in the colony so presumably most of the birds counted were breeding or site-holding birds, younger birds having left the colony (Nelson 2002). Gannets continue to visit their sites after losing a chick or egg and after the chick has fledged so although the counts were two days apart overall numbers of adult birds present would probably have changed little (Wanless 1979, Nelson 2002). Perhaps 15% of the colony on Fair Isle in 2017 was not visible from the land.

In conclusion, these opportunistic aerial surveys show that all three colonies are amenable for aerial survey and should an opportunity arise in the future, preferably in late May to late July, it would be useful to make further comparisons of totals obtained by the different methods and determine correction factors. For maximum survey coverage during any future wide-scale assessment of Gannet populations, the three colonies, as well as Hermaness, the fourth colony in Shetland, should be surveyed from the air. This could be using either a plane, or possibly a drone, as has recently been used successfully at the gannetries of Sule Skerry and Troup Head (Harris *et al.* 2020; Richard Humpridge/RSPB pers. comm.).

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Revised ms accepted November 2020

Plate 162. Magpies, Port Righ, Carradale, Argyll, March 2020. © *Alasdair Paterson*

An influx of Magpies to West Scotland via South Kintyre in spring 2020

E. MAGUIRE

The status of the Magpie *Pica pica* in Argyll is interesting, with breeding restricted to Cowal and sporadic sightings elsewhere, particularly in spring (ap Rheinallt *et al.* 2007, Forrester *et al.* 2007, Daw 2014). While there are no permanent breeding populations of Magpies in Kintyre or Mid-Argyll, there have been notable influxes of Magpies to South Kintyre during late March/early April in 2007, 2008 and 2014 (Argyll Bird Reports) and earlier in 1975, 1979, 1982 and 1983 (pers. obs.). During 2020 a more detailed study was possible, because of the unprecedented numbers which arrived; this appears to confirm a previously anecdotal supposition that these birds originate from Northern Ireland. Magpies have been noted crossing the North Channel in spring, especially in April, from Copeland Bird Observatory, Co. Down to the Mull of Galloway; a distance of 22 km (Daw 2014). The distance from Torr Head, Co. Antrim to the Mull of Kintyre is 19 km. The Magpie is considered by Else & Watson (2018, 2019, 2020) to be an "uncommon resident and probably occasional migrant" on the island of Rathlin, which lies almost 10 km north of the Irish mainland and west of Kintyre. During 2019, movement was noted on Rathlin; three birds circled high over the north-east part of the island on 31 March and a single bird flew south over Doon Bay on 8 April. Birds were also seen there on 5 April 2018 and 2 April 2017 (Else & Watson 2018, 2019, 2020). Prior to the influx that occurred in South Kintyre during late March 2020, the only recent records of Magpies in Argyll, not including the core breeding area around Dunoon, was one in Lochgilphead (Mid-Argyll) at the start of 2020 until early March and possibly the same bird at Kilmichael Glassary on 22 March. Other singles during this period were at Dalmally (Mid-Argyll) and a long-stayer at Tobermory, Mull (J. Dickson/M. Chattwood pers. comm.). These birds were excluded from the analysis of the spring influx.

Reports of Magpies in Argyll outside Cowal during spring 2020

During late March 2020, a small influx of Magpies occurred in South Kintyre. The first report in Argyll was of a single bird in Glenbarr on 25 March, followed by two the following day on the opposite coast of the peninsula at Peninver. The remainder of the sightings in March were restricted to Kintyre. More then arrived in South Kintyre in early April, including another at Peninver on 4 April, bringing the total at this location to three. The first bird reported in Mid-Argyll was seen on 3 April and a new bird was found on Mull around that time. Dispersal north from Kintyre into Mid-Argyll followed during April, with some birds eventually reaching the Isle of Mull and Morvern (Highland), followed by a small number of birds moving further north into Lochaber and Skye (Figures 1 & 2). A total of 33 Magpies was reported from 26 locations in Argyll; all were in Kintyre, Mid-Argyll and Mull. The most southerly bird was reported in a garden at Southend, Kintyre, on 27 March, while the most northerly was on the Ross of Mull. Sightings of more than one bird were noted in Kintyre (nine birds at four locations), Mid-Argyll (two birds at one location) and Mull (two birds at one location). In late April one bird moved to the Outer Hebrides, only the second record for this area, and another toured the Small Isles at the end of April/early May providing the first records on Canna, Rum and Eigg (Figure 1). While many of the Magpies appear to have been itinerant, a few birds have remained in South Kintyre. By October, there were still two in Campbeltown, one in Stewarton and three in Machrihanish, raising the possibility that the species may become established as a breeding bird in the south of Argyll.

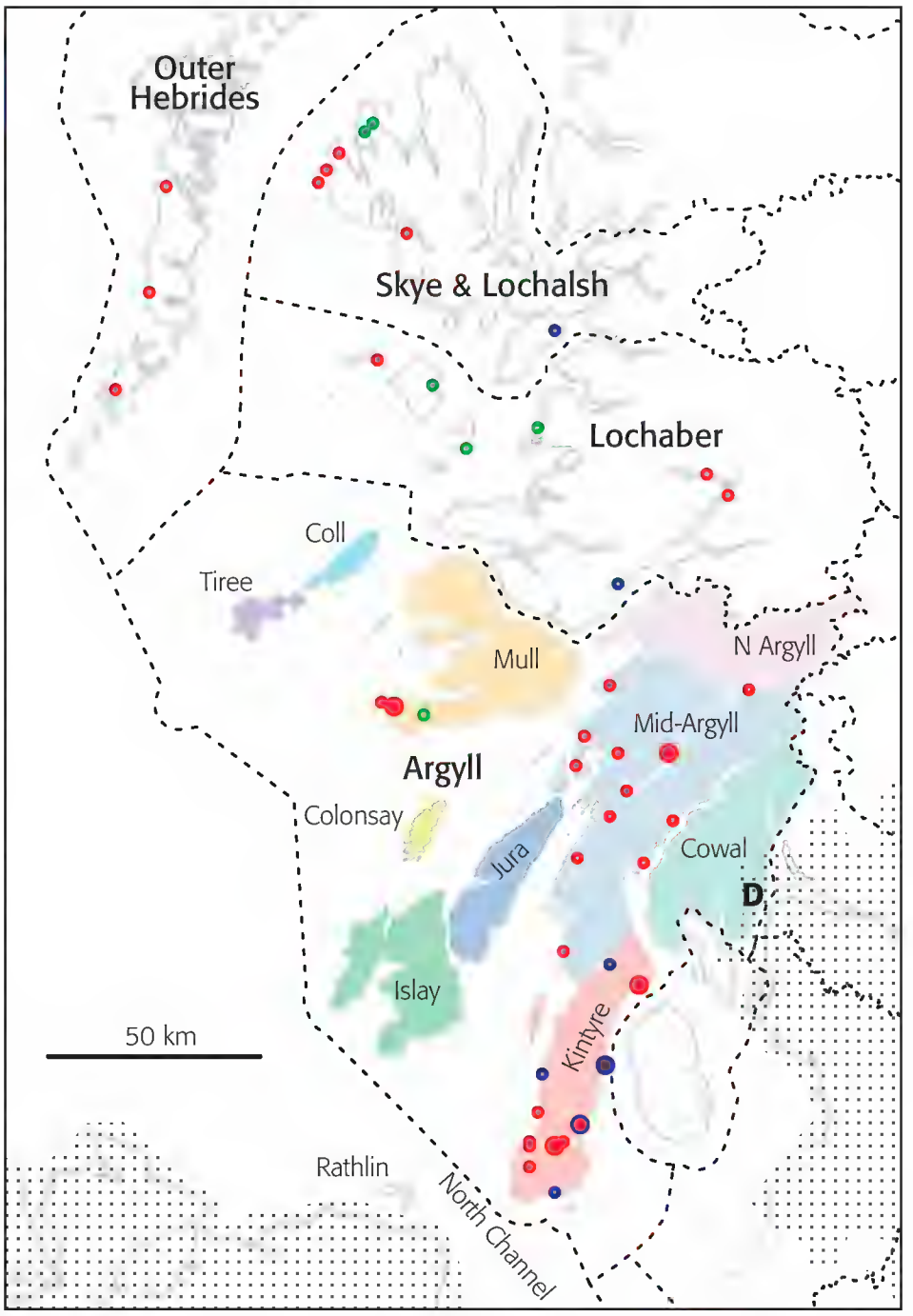

Figure 1. Distribution of reports of Magpies on the west coast of Scotland during spring 2020. (Blue - sightings in March, Red - Sightings in April and May, small dot - single bird, medium dot - two birds, large dot - three birds, D - Dunoon, the centre of small breeding population in Argyll).

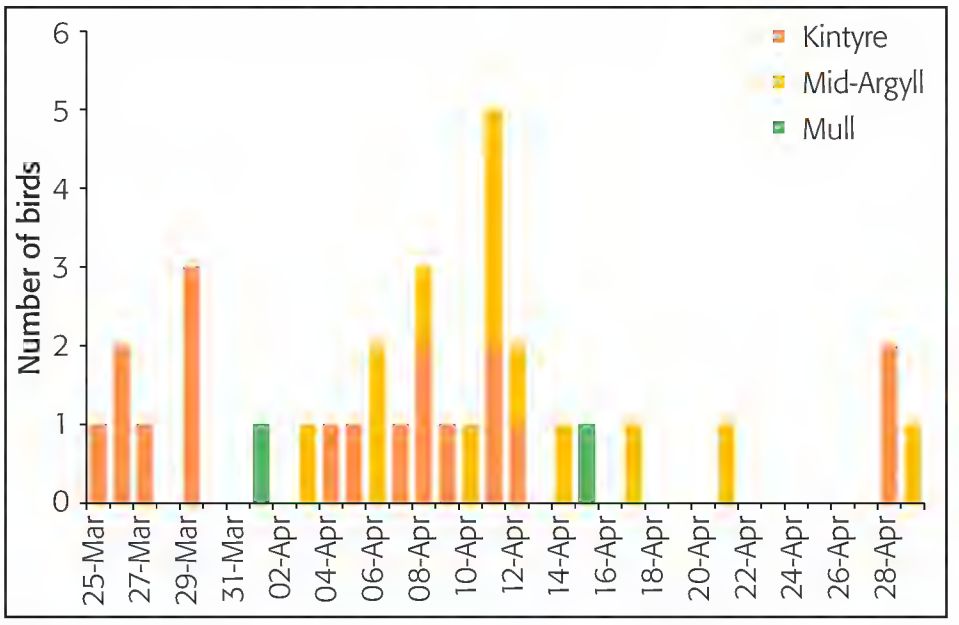

Figure 2. Arrival dates of Magpies in three out of ten Argyll Bird Recording Regions 25 March–29 April 2020.

Discussion

There was a clear pattern of arrival of Magpies in the south-west of Argyll (Kintyre) in late March and early April, followed by reports further north in the Inner and Outer Hebrides thereafter. The temporal and distribution pattern suggest that the source of this influx was not from the existing small population in Argyll, as the Cowal population is 50 km north of the origin of the influx in south Kintyre. Similarly, there were no reports on Arran, where the first reported bird was on 2 May (Jim Cassels pers. comm.), or in North Kintyre. It is interesting to note that the influx of Magpies into Argyll, via the Kintyre peninsula, occurred during the same period (late March–April) that dispersing birds have been noted recently on the island of Rathlin (Else & Watson 2018, 2019, 2020). Magpies occur throughout Ireland and breed at high densities in Co. Dublin and in Northern Ireland (Balmer *et al.* 2013, Gibbons *et al.*1993) so the movement of birds into Argyll during spring 2020 suggest that Northern Ireland was the source of the birds involved. Forrester *et al.* (2007) recognised that Magpies remain uncommon in Argyll and the Clyde Islands, and suggested that there was an "indication of a slow westward spread" across Scotland. However, the influx of birds in spring 2020 suggests that historically and recently one of the sources of birds moving to Argyll and other parts of the west coast is not from central Scotland but from Northern Ireland. No ringed birds were reported in the 2020 influx. Magpies usually only disperse short distances; of 27 recoveries in Scotland, 21 moved less than 9 km, but five moved 10–99 km and one more than 100 km (Forrester *et al.* 2007). While Wernham *et al.* (2002) do not report any movements of Magpies between Ireland and Scotland, this influx suggests that they move between Co. Antrim and Kintyre, as well as between Co. Down and Galloway (Daw 2014).

Acknowledgements

Many thanks to everyone on the west coast of Scotland who reported Magpies during spring 2020. Special thanks to Jim Dickson and Malcolm Chattwood, SOC Recorders for Argyll, and Bob McMillan for providing details of the reports of Magpies in the west of the Highland Region and the Outer Hebrides. My sincere thanks go to David Jardine, Jim Dickson and Bob McMillan who helped improve earlier drafts of this paper, and Ian J. Andrews for preparing the figures.

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Sadly, Eddie Maguie died in mid-July 2021; a full obituary will appear in the next issue of SB.

Colonisation of St John's Pool, Caithness by terns and gulls

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Introduction

Ground nesting seabird and wader species breeding in coastal areas, particularly on sandy beaches, are increasingly susceptible to disturbance from human activities globally. Impacts can include habitat change due to coastal development, disturbance of breeding birds from human recreation and dogs, trampling of eggs or young, and the attraction of predators through litter, waste food or deliberate feeding of gulls (Pienkowski 1993, Wilson *et al.* 2020). The subsequent impact of these disturbances on species include reduced breeding ranges, breeding densities and breeding success (Pienkowski 1993). Even ground-nesting species breeding in areas with relatively low human population levels such as the north coast of Scotland can be vulnerable to human disturbance. In Caithness, such disturbance has been recorded as the reason for past desertion of some coastal colonies by breeding Little Tern *Sternula albifrons*, Common Tern *Sterna hirundo* and Arctic Tern *Sterna paradisaea* (Davey *et al.* 2012).

Historically in Caithness, most breeding terns nested in coastal habitats, predominantly on beaches, or along river and loch banks, as well as on the island of Stroma off the north coast. However, in recent years there has been an increase in terns breeding on roof tops or within fenced areas, with few terns now breeding in natural habitats away from Stroma, largely attributable to increased human disturbance (Davey *et al.* 2012). St John's Pool (58°38 N, 003°20 W) is a private nature reserve near Dunnet, Caithness (Figure 1). The reserve began life in 1989 when a modest wader scrape was created on the north side of St John's Loch. The combination of small islands within a shallow pool of approximately one hectare, complete with a variety of rocky, sandy and muddy habitats were features not found around the adjacent, and significantly larger, St John's Loch. The aim was to attract wetland species including waders and wildfowl, which could be seen at close range year-round. In the 1990s, two major extensions to the pool were made plus a range of new groundworks undertaken. The additional open water and islands encouraged increased breeding attempts by waders and wildfowl, Arctic Terns, Black-headed *Chroicocephalus ridibundus* and Common Gulls *Larus canus*. However, it was

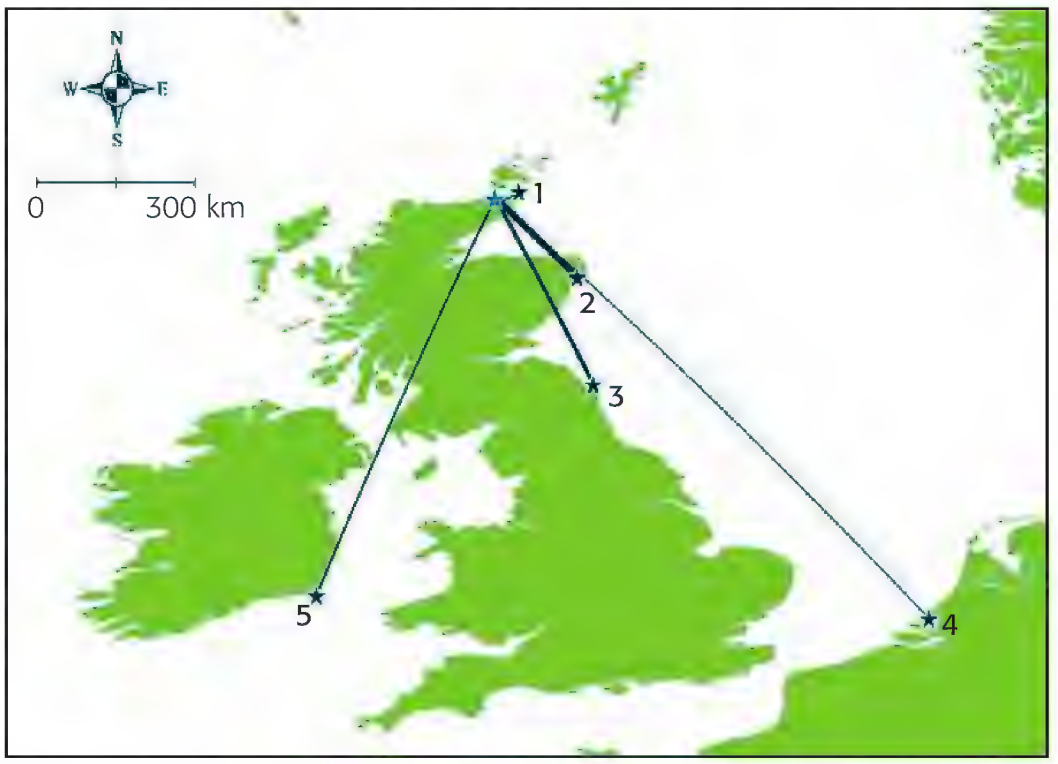


Figure 1. Location of St John's Pool, Caithness, North Scotland, depicted by the blue star. Black stars show the ringing locations of colour-ringed Sandwich Terns subsequently re-sighted at St John's Pool (see Table 2). **1** Liddel, South Ronaldsay; **2** - Forvie NNR, Ythan Estuary; **3** Inner Farne, Northumberland; **4** Scheelhoek Eilanden, Haringvliet, Holland; **5** Inish, Lady's Island Lake, Wexford. The thickness of the line relates to the number of individuals recorded from each ringing location.

not until 2003 that the first successful breeding of Arctic Terns took place. In 2007, the first record of Sandwich Terns *Thalasseus sandvicensis* arriving en masse occurred and subsequently 14 pairs nested. Unfortunately, within a week of laying, all eggs had been predated by Red Fox *Vulpex vulpex* and Otter *Lutra lutra*. By then St John's Pool Bird Reserve was almost 20 years old but evidently ground predators were having a major impact, not only on waders and wildfowl, but on the potential colonisation by three species of terns. It was clear that without serious intervention, this situation would not improve.

In 2010, thanks to generous awards by various funding bodies, an electrified perimeter fence was constructed to exclude large mammalian predators (specifically Red Fox and Otter). In addition, a new public hide was built in 2011, to increase capacity for visitors. The addition of two photographic hides in 2016 was designed to help support the management and viability of the reserve. As a result of this habitat creation and the success of the perimeter fence, St John's Pool now hosts a growing tern and gull colony. Here we describe the development of St John's Pool as a breeding colony for Sandwich Terns, as well as for Black-headed Gulls, Arctic and Common Terns.

History of Sandwich Terns in Caithness

Prior to the 1960s there were only three records of passage migrant Sandwich Terns in the county, with breeding first proven in 1970 at an unknown location (Davey *et al.* 2012). Forty nests were recorded at Loch of Mey in 1973, however, after two years this colony disappeared. Around this time a new colony was established on Stroma, peaking at 640 pairs in 1980, but by 1986 the colony was abandoned with the colony thought to have relocated to the Pentland Skerries and Swona, Orkney (Davey *et al.* 2012). During the Seabird 2000 census, no Sandwich Terns were recorded breeding in Caithness (Mitchell *et al.* 2004). Sandwich Terns returned as a breeding species in 2007 when the first pairs attempted to breed at both St John's Pool and Staxigoe (Davey *et al.* 2012).

Methods

Since the establishment of the pool in 1989, the presence and breeding success of terns and Black-headed Gulls has been recorded by JS. Initially the number of breeding pairs and fledged chicks was estimated from visual observations from the hides to prevent disturbance to the birds. As the site developed into a larger tern and gull colony, counts were estimated as minimum counts because some nesting pairs cannot be observed from any point around the reserve, especially as the vegetation grows. All colour-ringed birds observed at the site since it was established have also been recorded.

Plate 163. Colour-ringed Sandwich Tern (EAT) on left with displaying male, St John's Pool, 11 June 2017. © *Dave Devonport*

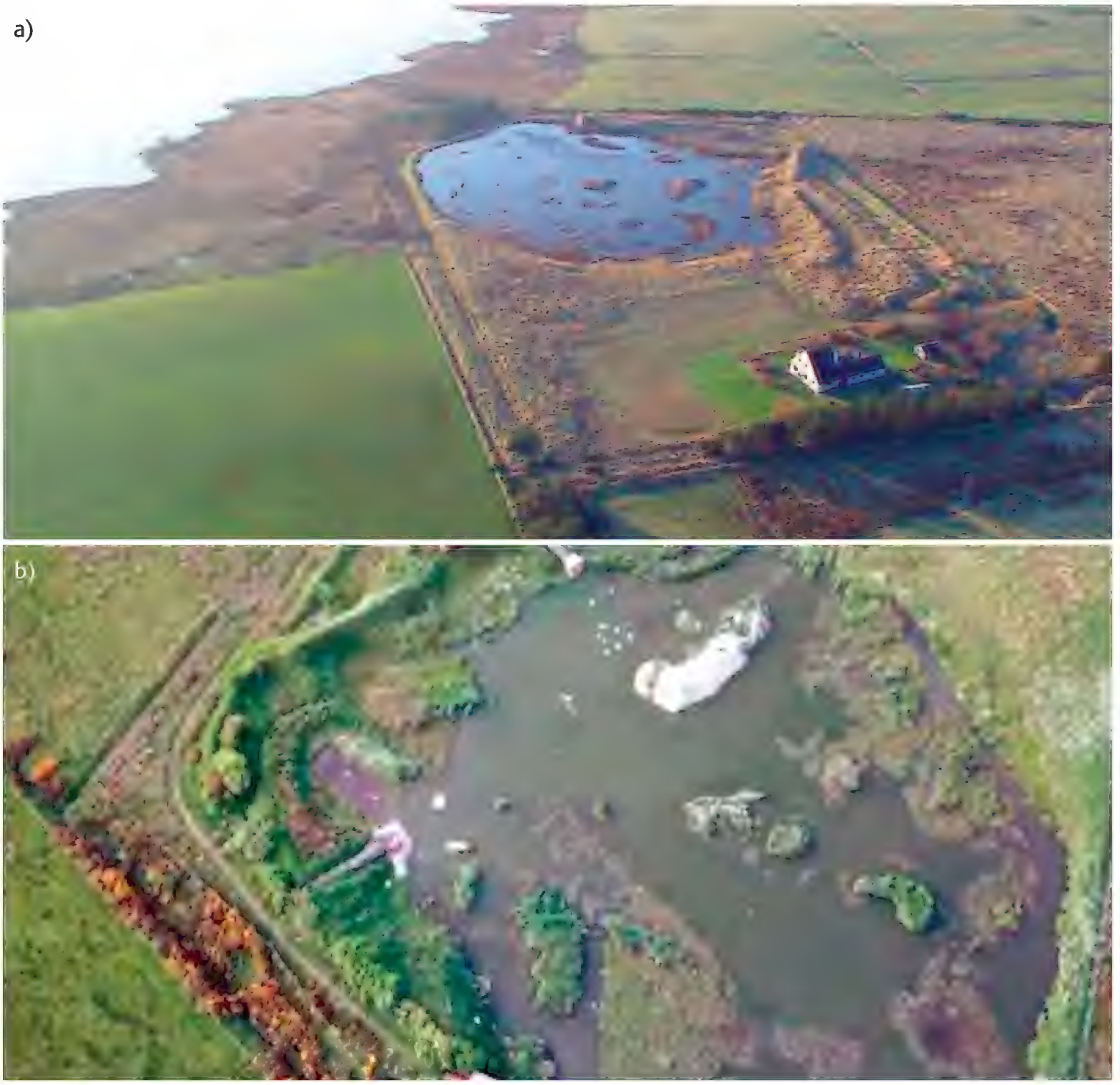


Plate 164. Aerial view of St John's Pool from a) 2008 and b) 2018 showing new 'Sandwich Island' top right. In 2020 this small pile of sand (just 100 m square) supported over 100 pairs of Sandwich Terns, *c.* 20 pairs of Common Terns, two or three pairs of Arctic Terns and 30 pairs of Black-headed Gulls. © *Julian Smith*

Results

Prior to the islands being created and the predator fence erected, Sandwich Terns attempted to breed only once but failed due to Otter predation. However, following the establishment of the electrified perimeter fence, Sandwich Terns successfully bred in 2012, and the number of breeding pairs has continued to increase, to 105 breeding pairs in 2020 (Table 1, Figure 2). The creation of a 'customised' sand island in 2014 benefited the Sandwich Terns by providing increased breeding habitat.

Prior to 2011, the number of breeding Arctic Terns fluctuated from zero to a maximum of 45 pairs in 2006. However, breeding success was generally low, with only five chicks fledging in 2006. After the fence was erected, the number of breeding Arctic Terns did increase for a couple of years to a maximum count of 130 pairs in 2013, but breeding success was still low with no chicks successfully fledging in 2013. Although a few individuals were observed nest scraping between 2014 and 2016, none were confirmed to have bred. In the last two years Arctic Terns numbers have increased again to around 50 pairs in 2020.

Table 1. Numbers of breeding Sandwich Terns (Apparently Occupied Nests) in Caithness and neighbouring regions, Scotland and Great Britain.

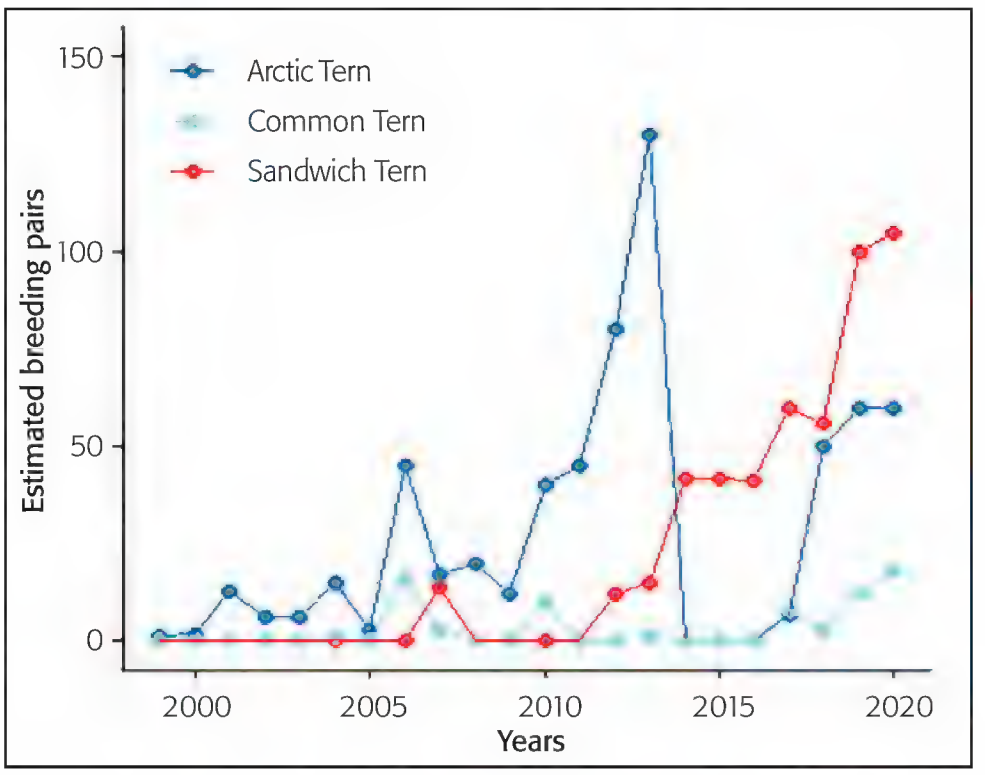
Location (Administration Area/Region)	*Operation Seafarer* (1969–70)	Seabird Colony Register (1985–88)	Seabird 2000 (1998–2002)	Most recent count
Caithness	0	0	0	min. 105 pairs (2020, St John's Pool)
Orkney	293	289	173	41 Individuals on Papa Westray (2018, S. Money per comm.)
Aberdeenshire	740	1,082	524	1,010 (2019, Sands of Forvie)
Scotland	2,465	2,286	1,068	Also reported as 1,068 AON in Forrester *et al.* 2007.
Great Britain	9,857	12,580	10,536	12,500 in 2015 (Range 11,500–14,000, Woodward *et al.* 2020)

The number of pairs of Common Terns has also fluctuated since the pool was established with none, or very low numbers attempting to breed in most years, although 16 pairs attempted to breed in 2006, the same year when Arctic numbers were also high. However, no Common Terns chicks successfully fledged at St John's Pool until probably 2018. In 2020, a record count of 35 chicks fledged from 18 pairs.

The numbers of breeding pairs of Black-headed Gulls, increased from 130 pairs in 2011 to *c.* 600 pairs between 2017 and 2020 (Figure 2).

Enclosure incursions and predation pressures

Before the perimeter fence was erected in autumn 2010, Red Fox and Otter were frequently recorded in the colony, especially during



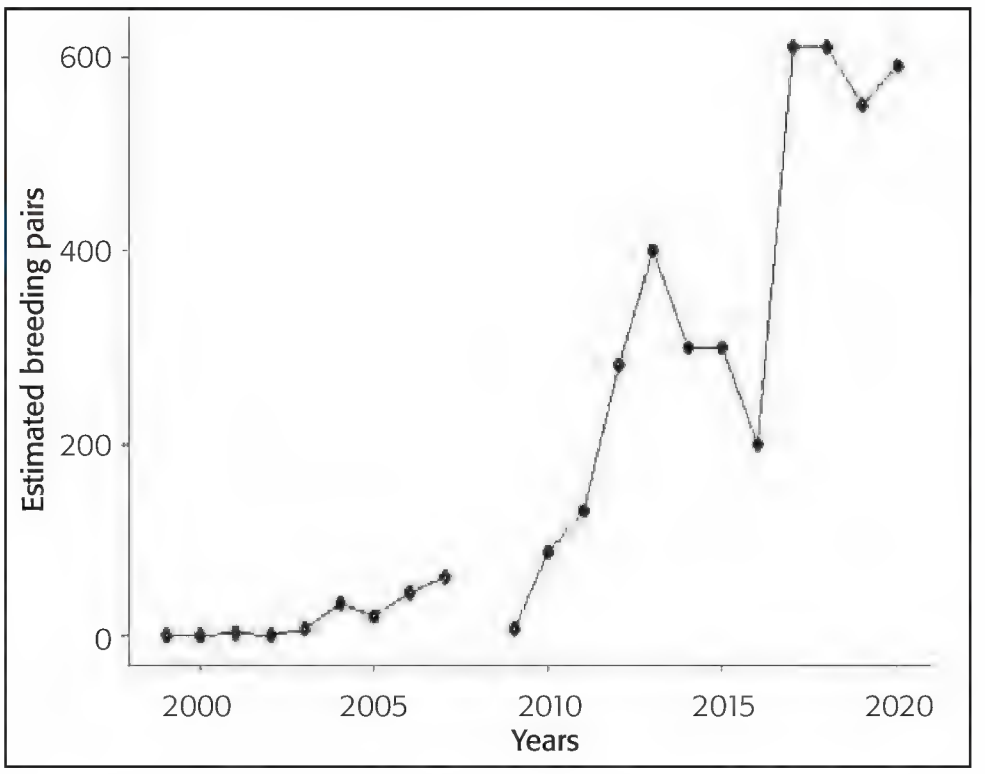


Figure 2 (upper). Estimated number of breeding pairs of the three tern species at St John's Pool since 1999. **Figure 3 (lower).** Estimated number of breeding pairs of Black-headed Gulls at St John's Pool since 1999. Data is missing for 2008 and 2009.

Table 2. Details of the Sandwich Terns re-sighted at St John's Pool (SJP) up to 2020.

Colour Ring	Date ringed	Ringing Location	Life stage when ringed	First sighting at SJP	Last sighting at SJP	Bred at SJP
NA*	09/06/2000	Liddel, South Ronaldsay	adult	03/07/2018	03/07/2018	Yes
NA*	09/06/2000	Liddel, South Ronaldsay	adult	03/07/2018	03/07/2018	Yes
EAT	15/08/2010	Ythan Estuary	juvenile	08/06/2016	07/07/2017	Yes
EBT	16/08/2010	Ythan Estuary	juvenile	20/04/2016	06/06/2019	Yes
EKC	23/06/2011	Ythan Estuary	adult	03/07/2017	16/07/2017	Yes
ECC	24/06/2011	Forvie NNR	chick	04/07/2016	05/05/2020	Yes
ECK	21/07/2011	Ythan Estuary	adult	06/05/2015	06/07/2017	Yes
ECV	05/06/2013	Forvie NNR	chick	04/07/2017	29/06/2018	Yes
EJT	05/06/2013	Forvie NNR	chick	31/05/2017	31/05/2017	No
EKB(B)	04/07/2013	Forvie NNR	chick	28/05/2017	23/04/2018	Yes
ENH	01/05/2014	Ythan Estuary	adult	20/04/2016	07/07/2020	Yes
UCL	14/06/2014	Inner Farne	chick	10/06/2018	10/06/2018	No
EVP	16/06/2014	Forvie NNR	chick	23/06/2018	06/06/2019	Unknown
EHV	18/06/2014	Forvie NNR	chick	21/05/2017	29/06/2018	Yes
EKH	15/07/2014	Ythan Estuary	adult	05/05/2018	20/05/2020	Unknown
KCA	16/06/2015	Inish, Lady's Island Lake, Wexford	chick	10/05/2018	10/05/2018	Unknown
KJC	17/06/2015	Inish, Lady's Island Lake, Wexford	chick	21/06/2020	21/06/2020	Unknown
UZN	20/06/2015	Inner Farne	chick	10/07/2018	10/07/2018	No
UTV	20/06/2015	Inner Farne	chick	21/06/2018	06/06/2019	Likely
UAS	20/06/2015	Inner Farne	chick	19/06/2018	07/07/2020	Likely
EKF	05/06/2016	Ythan Estuary	juvenile	23/06/2018	23/06/2018	Unknown
EBV	20/06/2016	Forvie NNR	chick	12/07/2018	13/07/2018	No
EKB(I)	23/07/2016	Ythan Estuary	adult	02/07/2017	12/07/2020	Yes
2HA	19/06/2017	Scheelhoek Eilanden, Holland	chick	21/06/2020	21/06/2020	No
EKT	19/06/2017	Forvie NNR	chick	12/07/2020	12/07/2020	Unknown

* Metal ringed individuals only

2009 when only a handful of Black-headed Gull and Arctic Tern chicks managed to fledge thanks to breeding on a raft. In subsequent years, the fence has largely been successful at keeping these larger mammals out, although occasional incursions have occurred. For example, in 2019 an Otter found a way in and was observed taking adult and young Black-headed Gulls off their nests and from the water over a period of several days. Brown Rats *Rattus norvegicus* and small mustelids have been observed in the enclosure and are suspected to have taken eggs and unfledged chicks and therefore are likely to be limiting the breeding success of Arctic and Common Terns. Despite Common Terns breeding on the main island next to the Sandwich Terns and Black-headed Gulls, their eggs, and possibly chicks, have regularly been subject to predation. The most conspicuous predators have been Common Gulls, but other predators may be involved.

Between, 2013 and 2018, 2–4 pairs of Coots *Fulica atra*, bred on the pool, with a single pair breeding in 2020, whilst at least three pairs of Moorhen *Gallinula chloropus* bred in 2020. In 2013, Coots were recorded predating Arctic and Common Tern eggs, which resulted in complete breeding failures for both species. In 2011 the Arctic Tern colony of *c.* 100 nesting pairs deserted. This may have been due to a food shortage or small mammalian predators. At least one pair of Moorhens capitalised on the abandoned nests by carrying the Arctic Tern's eggs off to their own chicks. This appears to have become a valuable source of protein in subsequent years. Since 2011 Moorhens have been particularly aggressive towards nesting Arctic Terns, especially during cold

springs when there may be reduced invertebrate prey availability. On several occasions Moorhens have been seen charging at incubating Arctic terns and 'bulldozing' them off their nests. This regular disruption to the Arctic Terns' breeding season is clearly a limiting factor in the colony's development. In July 2013, a Great Skua *Stercorarius skua* was observed taking Black-headed Gull chicks from the colony. Towards the end of the season in 2017, when fewer adults were in attendance, Hooded Crows *Corvus cornix* were observed taking Sandwich Tern chicks.

Colour-ringed Sandwich Terns

A total of 23 colour-ringed and two metal-ringed only Sandwich Terns have been recorded at St John's Pool (Table 2), with the first colour-ringed individuals recorded in 2015 when 42 pairs of Sandwich Tern bred at the site. The majority of these individuals were ringed at Forvie Sands National Nature Reserve (NNR) or nearby on the Ythan Estuary, with further individuals on the Inner Farne, South Ronaldsay, Lady's Island Lake, Wexford and in the Netherlands (Figure 1). At least ten of these individuals have bred or attempted to breed at St John's Pool. Of these, four were ringed as chicks at Forvie NNR, whilst six were ringed as juveniles or adults on the Ythan Estuary (Table 2).

Discussion

Predation

Sandwich Terns often breed in mixed species colonies with other tern species and/or near gull colonies, especially Black-headed Gulls. The increase in numbers of Black-headed Gulls at St John's Pool, where they nest in close proximity to the Sandwich Terns on the islands in the centre of the pool, has probably benefited the Sandwich Terns. The benefits of terns breeding near a gull colony are thought to outweigh the costs when gulls offer protection by aggressively chasing off predators during incubation and early chick-rearing (Bukaciński *et al.* 2018). The benefits of a busy Sandwich Tern and Black-headed Gull colony can be seen at the end of the season, in late July and early August, when there are few pairs left. Hooded and Carrion Crows easily predate the remaining unfledged chicks as there are too few adults present to protect the young. However, there can be disadvantages, with the risk that gulls may predate tern chicks and eggs or steal prey items bought back by the adult terns (Stienen & Brenninkmeijer 1999, Stienen 2006).

Unlike the Sandwich Terns, Arctic Terns largely breed on the periphery of the pool and may not benefit from the protection of the Black-headed Gulls. Arctic Terns eggs and chicks are more susceptible to predation by small mammalian predators, as well as the eggs being vulnerable to predation from Coots and Moorhens.

During 2020 in Caithness, all breeding Sandwich Terns were located within the fenced area of St John's Pool whilst the majority of Arctic and Common Terns in the county nested within fenced areas, or on roofs. This highlights the benefit of having safe breeding areas away from human disturbance, which may also reduce predation pressures.

Origins of Sandwich Terns colonising St Johns Pool

With the sighting of the two adults ringed on South Ronaldsay, it is possible some of the St John's Pool breeders moved south from the declining Orkney population. Post-breeding dispersal to other tern colonies is common among adult Sandwich Terns (Noble-Rollin & Redfern 2002, Stienen 2006, Popov *et al.* 2012, Fijn *et al.* 2014). Colour ringed juvenile Sandwich Terns from the Scheelhoek Eilanden colony in the Netherlands have been found to disperse widely through north-west Europe, including visiting colonies in the UK post-breeding (Fijn *et al.* 2014). Juveniles rely on their parents for food post fledging (Stienen, 2006) and is indicative of juveniles following adults during post breeding dispersal to other colonies (Fijn *et al.* 2014). The information in Table 2 suggests that it is likely that the Forvie Sands NNR has been the source of some individuals to the increasing St John's Pool colony.

Conclusion

What started as a project to provide a refuge for waders and wildfowl has also, by accident and design, resulted in the establishment of a mixed tern and gull colony. St John's Pool now holds the entire Caithness Sandwich Tern population; it is the second largest regular colony in Scotland and the most northerly UK population after Papa Westray on Orkney. Based on the most recent Sandwich Tern population estimate of 1,068 pairs in Scotland, St John's Pool may hold nearly 10% of the Scottish population (Mitchell *et al.* 2004, Forrester *et al.* 2007).

Despite the terns and gulls nesting within an enclosed area and the increase in breeding pairs, their eggs and chicks are still vulnerable to predation, including predators such as Coot and Moorhens that are unlikely to be present at traditional coastal sites. To alleviate some of this pressure there is a plan to install rat-proof nest platforms in 2021. Estimating breeding success for the whole Sandwich Tern colony has been challenging due to the numbers of birds present in more recent years, as well as all nests not being visible. There is a plan to establish a monitoring plot to better understand the breeding success, chick diet and nest attendance of a visible subset of the colony through a combination of remote cameras, digital photography and visual observations. The attraction of the pool to the three tern species, as well as Black-headed Gulls, is likely be influenced by the productivity of feeding areas in nearby Dunnet Bay and the Pentland Firth. Monitoring the diet of the Sandwich Terns at the pool may help explore how these local foraging areas influence the terns' productivity.

Sandwich Terns, as well as Black-headed Gulls, Common and Arctic Terns, are classified as Amber-listed in the Birds of Conservation Concern in the UK (Eaton *et al.* 2015) and are not globally threatened. However, Garthe & Flore (2007) emphasised the international responsibility for protecting breeding Sandwich Terns, given their vulnerability to anthropogenic disturbance, pollution events and fishing activities. This is especially important given the connectivity between colonies in Western Europe and the use of similar wintering areas along the coast of west and southern Africa (Fijn *et al.* 2014, Tree 2011). Terns are also likely to be impacted by climate change, with predicted changes to their main prey species (Arnott & Ruxton 2002) and sea level rises and increased storminess of seas potentially flooding coastal breeding colonies (Mendel *et al.* 2008). Protected sites such as St John's Pool may help alleviate some of the additional pressures of disturbance and predation and help increase the resilience of terns to climate change. Furthermore, the addition of the hides of St John's Pool provides an excellent opportunity for people to view these seabirds and be inspired to help protect our environment into the future.

Acknowledgements

The list of people and organizations who have contributed to the success of St John's Pool Bird Reserve over the past 30 years is long. However, we would like to make a special mention of the following: Caithness Conservation Volunteers; Highland Ranger Service and Caithness Bird Club (Caithness Branch of SOC); the ringers, including Ewan Weston at Forvie NNR, for their assistance in supplying the Sandwich Tern ringing data. Funders have included: SNH; LEADER Programme; SLCF and SOC. Thanks also go to the many anonymous visitors who have kindly contributed at the pool via the donations box, and finally, the photographers who have hired the water-level hides and provided such wonderful images of birds, all of which helps support the conservation efforts at St John's Pool Bird Reserve. We also thank the two reviewers for their constructive comments which improved the manuscript.

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Thirty-five years counting on the Firth of Tay

N. ELKINS

Introduction

The Wetland Bird Survey (WeBS), encompassing the former Birds of Estuaries Enquiry (BoEE) and National Wildfowl Counts (NWC), has operated in the Firth of Tay for many decades. In the 1960s, most monitoring was of wildfowl, but coverage expanded in the 1970s to include waders. Since the author became local organiser in 1985, teams have continued to count all high tide roosts every winter and in many other months, as well as periodic coverage at low tide every few years. The aim of this paper is to examine the long-term changes in distribution and numbers of the principal species between 1985 and 2020 and speculate on the future. The emphasis is on waders but other waterbirds are included for completeness. Earlier papers have afforded interim findings plus descriptions of the firth (Elkins 2006, 2007, 2014, Elkins & Lynch 1997). Figure 1 maps the relevant features of the firth, which is part of the Firth of Tay and Eden Estuary Special Protection Area (SPA) and includes several Sites of Special Scientific Interest (SSSI). Other statutory conservation designations cover all or parts of the firth, such as a Ramsar Site, Special Area of Conservation (SAC), and a National Nature Reserve (NNR).

Methods

Core counts

WeBS (initially BoEE) high tide counts employed in this review began in September 1985. Coordinated counts were carried out monthly from September to March but limited counting in other months was undertaken from 1992, mostly in the outer firth (see Table 1). In this review, data for 'winter' refer to the period from December to February (the year denoted in illustrations being December), when wintering populations should normally be most stable. Counts concentrated on the five main wader roosts shown in Figure 1: Invergowrie Bay (1), Monifieth (2), Tayport and Lucky Scalp (3) and Tentsmuir Point (4). From 2007, a new roost, labelled Tentsmuir Sands North

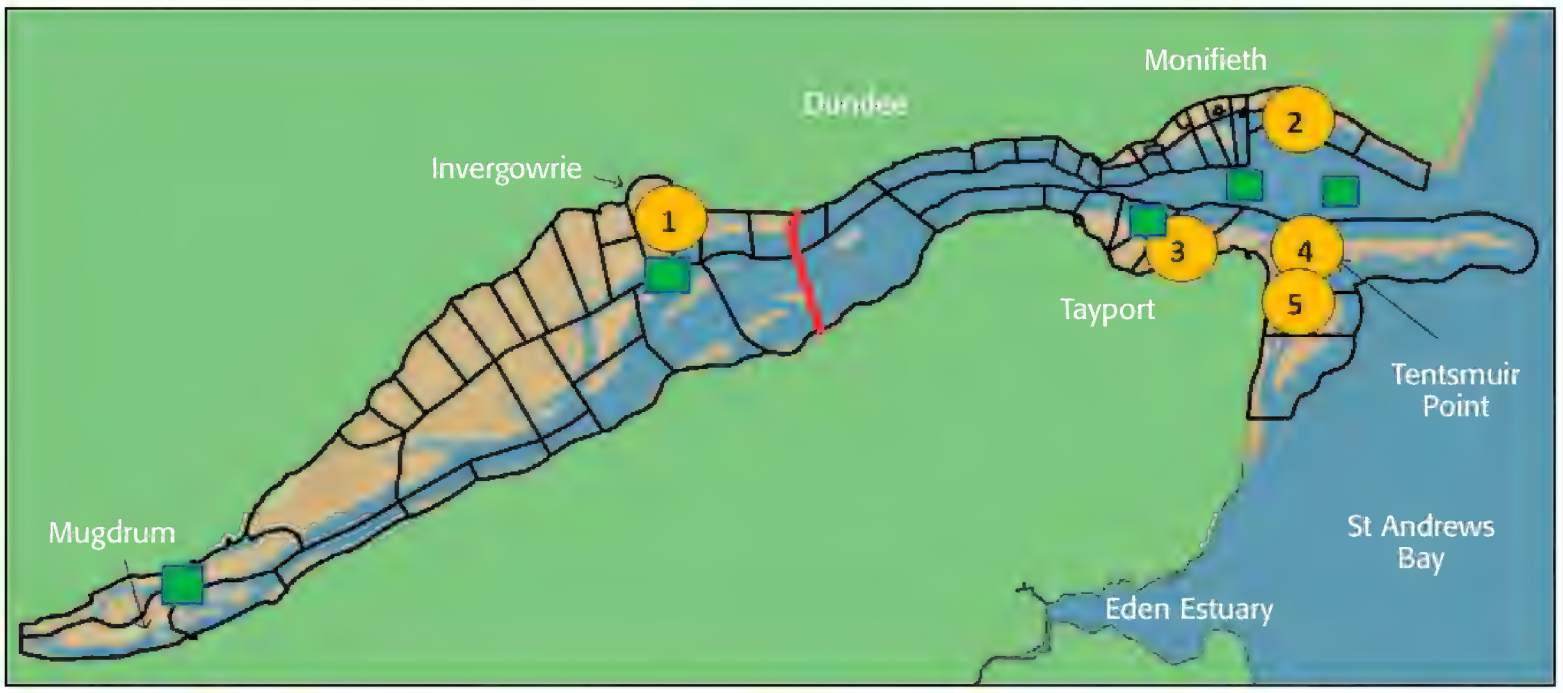

Figure 1. The Firth of Tay, showing the main high tide waterfowl assemblages (orange: wader roosts; green: wildfowl concentrations). Also shown are the low tide count sectors and intertidal areas (in brown). The inner firth is defined as being west of the Tay Rail Bridge (shown in red). The distance from Mugdrum to Tentsmuir Point is 30 km and the firth's area below high-water mark is approximately 100 km^2.

(5) was discovered just south of Tentsmuir Point. The configuration of the coastline here undergoes changes as a result of a mobile dune system, influencing the number of roosting birds at each of these Tentsmuir sites. While not strictly all within the firth, the movement of birds between these two roosts necessitated the combination of counts into one for the purposes of this analysis, under the heading of Tentsmuir Point. Lucky Scalp is an offshore vegetated sand and shingle islet two kilometres east of Tayport, inaccessible at high tide but countable from Tentsmuir Heath to the south. Wildfowl and other waterbirds were also monitored from these count sites, but many were distant or out of view. Seabird counts were optional and therefore omitted from this analysis. Further west, intermittent core counts were made around Mugdrum Island (Figure 1) between 1985 and 1990, and more regularly from 2007 to 2020. Mugdrum has no wader roost but its surrounding waters harbour numerous wildfowl. Most of the north shore between Invergowrie and Mugdrum is backed by a deep *Phragmites* reedbed and is almost inaccessible at high tide to both counters and roosting waders. The south shore west of Tayport has almost no roosting potential.

Low Tide counts

These counts are aimed at determining the use made of intertidal substrates by waterfowl, so coordination is less important. Totals rarely correspond to those at high tide due to the different count dates, birds' mobility and increased access to intertidal areas by counters. Counts on 68 sectors (see Figure 1) were made around low tide on one weekend in each month from November to February. These embraced the whole firth from Mugdrum eastwards during the winters of 1993/94, 1996/97, 2006/07 and 2012/13. Wildfowl outside the low tide sector boundaries in the outer firth remained uncounted.

Several caveats apply to this analysis. Coordination was not always possible due to weather, counter availability, access problems and/or disturbance. These factors can affect accuracy of counts. Disturbance during counting may lead to birds moving between roosts, but this was exceptional. Data examined are solely from WeBS counts and represent a snapshot of birds using the firth at any one time. Those from various non-WeBS sources during the period are not included in the results. Some of these may have been noteworthy but were considered unlikely to alter the overall findings of this long-term analysis. Unless otherwise specified, all tables and figures are derived from core counts only.

Table 1. Number of high tide counts made in each month at each site (maximum 35 for each month).

	TP	TLS	MON	INV	MUG
Jan	35	35	34	32	13
Feb	35	35	34	34	13
Mar	35	34	34	32	14
Apr	24	27	20	21	8
May	28	27	16	13	3
Jun	29	28	11	10	2
Jul	29	29	13	11	2
Aug	29	29	16	16	2
Sep	33	35	33	26	11
Oct	35	35	33	26	14
Nov	35	35	32	30	15
Dec	35	34	33	32	14
Total	**382**	**383**	**309**	**283**	**111**

(TP = Tentsmuir Point; TLS = Tayport/Lucky Scalp; MON = Monifieth; INV = Invergowrie; MUG = Mugdrum)

Results

Table 1 shows the number of monthly core counts made during the period. Those undertaken during winter represented 97% of the potential counts for wader roosts in that season while sufficient counts in other months were deemed to yield meaningful results.

Waders

Twelve species of waders regularly used the firth during the period, two of them now infrequently (Table 2). The most abundant species were Oystercatcher *Haematopus ostralegus*, Bar-tailed Godwit *Limosa lapponica* and Dunlin *Calidris alpina*. There is evidence of interchange with nearby estuaries, *e.g.* with Dunlin, which may commute between the Firth of Tay and the Eden Estuary, 9 km to the south (Elkins 2014). Without complete coordination of counts between adjacent estuaries, exchanges such as these cannot be quantified.

Table 2. Average winter counts (December, January & February) of wader species at high tide in the Firth of Tay.

	1985–89	1990–94	1995–99	2000–04	2005–09	2010–14	2015–19
Oystercatcher	1,718	1,741	1,553	1,321	997	1,046	1,110
Lapwing	316	334	319	104	57	0	7
Golden Plover	49	164	60	6	8	0	2
Grey Plover	156	188	211	159	144	112	116
Ringed Plover	83	85	77	70	66	44	72
Curlew	310	208	223	228	194	193	222
Bar-tailed Godwit	1,077	976	1,217	1,007	522	486	603
Turnstone	50	44	57	47	37	44	106
Knot	214	102	90	162	94	134	835
Sanderling	254	141	101	61	90	49	111
Dunlin	2,155	2,793	1,879	1,176	723	477	1,172
Redshank	840	759	585	764	456	309	486

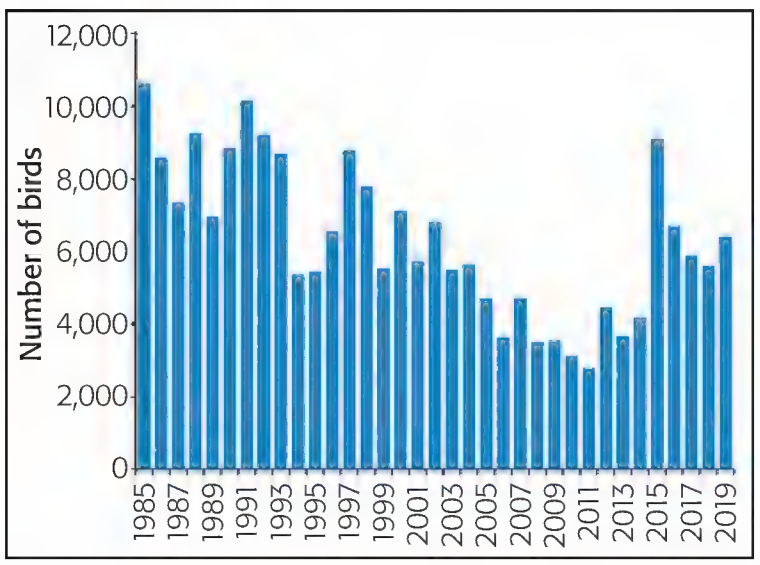

Figure 2. Maximum monthly total of waders of all species at high tide each winter in the Firth of Tay.

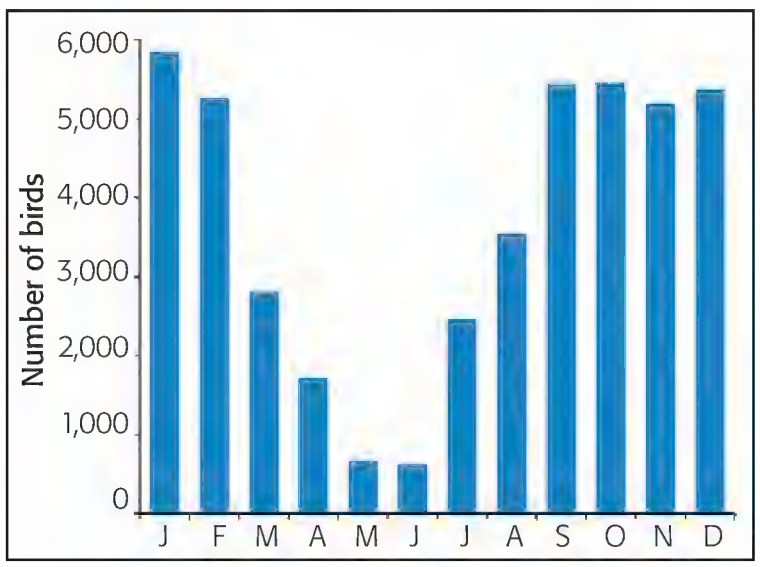

Figure 3. Average monthly totals of all waders at high tide in the Firth of Tay.

Figures 2 and 3 include small numbers of other waders such as Snipe *Gallinago gallinago*, whose behaviour renders accurate counting impossible, and irregularly occurring species such as Black-tailed Godwit *Limosa limosa* and Greenshank *Tringa nebularia*.

Note the high levels during the autumn migration period. Incomplete counts (data missing from one or more roosts) are omitted.

Oystercatcher *Haematopus ostralegus*

The average population of roosting birds in winter has declined in the past 25 years by around 35% (Table 2). A third normally roost on Lucky Scalp with the remainder spread among the other roosts. There was a significant, but unexplained, reduction at Invergowrie between 2012 and 2016 (Figure 4). Maximum counts were in the winter of 1990/91, when an average of 2,432 birds was present. The highest monthly count was of 3,820

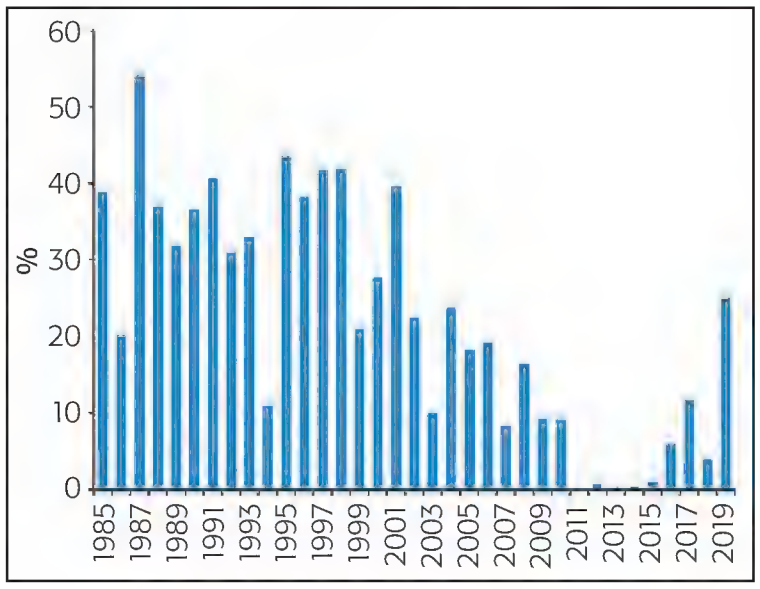

Figure 4. Percentage of Oystercatchers roosting at Invergowrie in winter (no counts in 2011/12).

in January 2016 with 90% at Tentsmuir Point. This number was unprecedented and due to high river levels displacing birds from roosts elsewhere. This is the most abundant wader present in the firth in midsummer, with an average of 330 birds. At low tide, they are spread throughout the firth although few penetrate to the furthest west.

Lapwing *Vanellus vanellus*
There has been a remarkable decline of both roosting birds (Table 2) and those feeding. Several hundred were present at both high and low tides in the 1990s, the majority in the inner firth. Flocks of up to 200 occurred as early as June, with the highest numbers in August and September. The peak was of 2,000 in September 1987. By 2006, flocks of Lapwings had become infrequent and the firth is now almost deserted in winter, with only small numbers present at low tide.

Golden Plover *Pluvialis apricaria*
This plover has also virtually disappeared from the firth in winter. The peak formerly occurred in October, when augmented by migrants, with a count of 930 in 2003. Flocks of 200–300 have since appeared very infrequently in late autumn. The winter peak was 430 in January 1999 but only an occasional small flock has been recorded this century (Table 2). Low tide counts were in the hundreds in the 1990s, with large flocks off Tayport and Invergowrie. The former site was abandoned after 2005 and only small flocks are still found in the inner firth; there were 105 in February 2013. Both this species and Lapwings feed inland in mild winters, which have become more frequent latterly and which may have contributed towards the observed declines.

Grey Plover *Pluvialis squatarola*
Grey Plovers arrive in August and reach a population of 150–200 birds from September to March. Annual fluctuations can be substantial and some counts have been high *e.g.* 904 in February 2017. Tentsmuir Point hosts 80–90% of roosting birds while few occur in the inner firth at any tidal state. After an April departure, 10–30 non-breeders remain in summer. At low tide, most birds feed on the southern shore of the outer firth.

Ringed Plover *Charadrius hiaticula*
A few pairs occasionally breed on undisturbed shores in the outer firth and the species has only a small presence in winter (Table 2). However, the outer firth is important for migrants. Highest numbers are found at Tentsmuir Point, where May and August are the principal months (Figure

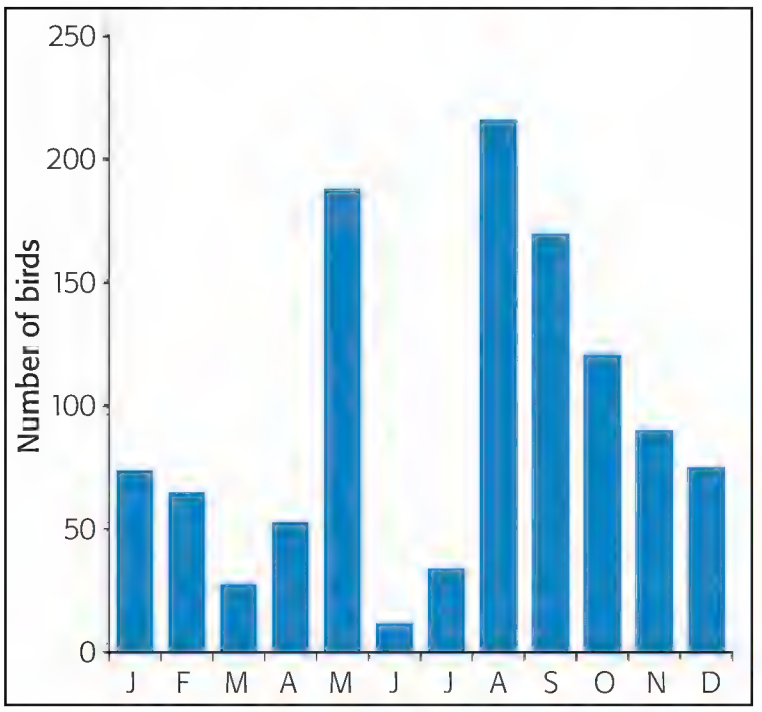

Figure 5. Average monthly counts of Ringed Plovers roosting in the Firth of Tay.

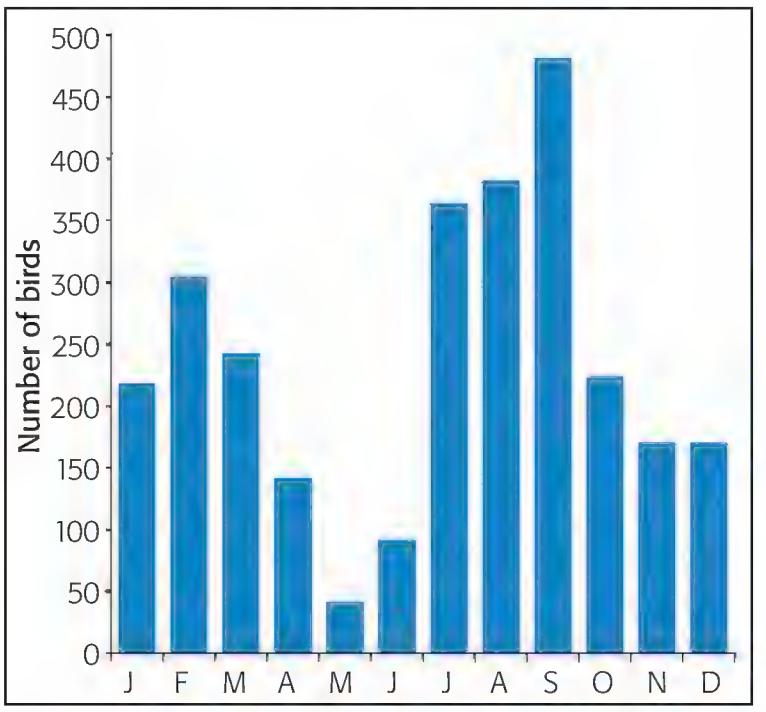

Figure 6. Average monthly counts of Curlews roosting in the Firth of Tay.

5) and involve High Arctic breeding populations. Similar patterns are found on the Eden Estuary and at other coastal sites in Scotland (Forrester *et al.* 2007). Five counts in May between 1992 and 2019 exceeded 300 birds. The maximum was of 604 in May 2009, when they were accompanied by a flock of 635 High Arctic Dunlin. In August, the peak at this roost was of 650 in 2008. A wide annual variability in these counts suggests that flocks are very transient and thus do not always coincide with the WeBS core count. Passage later in the autumn can also be substantial; 568 were present in October 2004 at Monifieth, the favoured winter roost. There is little evidence of any significant change in winter during the period, but annual variation is quite high. Winter low tide counts are generally in double figures, mostly off Tayport with a few in the inner firth.

Curlew *Numenius arquata*
An increase from July precedes a September peak (Figure 6), the maximum count being 1,152 in September 1991. The wintering population is relatively small (Table 2) and there has been little change during the period. Invergowrie is the favoured roost and Lucky Scalp a close second. Feeding in nearby fields may explain the disparity between adjacent low tide and high tide counts, when many more birds are present at low tide, although the high autumn peak (Figure 6) of roosting birds is perhaps enhanced by those using the firth before harvesting is complete.

Bar-tailed Godwit *Limosa lapponica*
Once a wintering species of international importance in the firth, numbers have shown a decline during the period and now only exceed the threshold for national importance (Frost *et al.* 2020). Some birds appear in late summer, but the main arrival is in September. Highest numbers occur in January and February when counts prior to 2005 often exceeded 1,000. They have rarely reached that figure since (Table 2). The peak count was 2,305 in January 1997, when 70% were at the Monifieth roost. This and Tentsmuir Point are the favoured sites but flocks of up to several hundred occasionally use the other two roosts, choice possibly determined by disturbance. At low tide, concentrations are found on both shores of the outer firth with some off Invergowrie.

Turnstone *Arenaria interpres*
This Arctic breeding species arrives from August but most favour rocky shores away from the firth. The wintering population is 40–70 birds with 80% roosting at Monifieth. There has been an increase recently (Table 2), with a peak of 152 in the winter of 2015/16. At low tide, many birds cross the firth to feed on the exposed weedy 'scalps' (stony scars) off Tayport. Very few enter the inner firth and almost all have left by May.

Knot *Calidris canutus*
August sees the first arrivals and the peak is reached in January; only a few birds are found after April. There is considerable annual variation (Table 2). No birds were present in the winter of 2013/14, although 38 had been recorded in November 2013. In contrast, the winter average only two years later was 1,565, when 2,755 were present in January 2016 at Tentsmuir Point (cf. Oystercatcher). This site and Monifieth are the two favoured roosts and none enters the inner firth at any tidal state. The wide fluctuations may be due to interchange with other estuaries. At low tide, most feed on the southern shore of the outer firth, with counts generally of the same order as core counts.

Sanderling *Calidris alba*
Virtually all birds of this High Arctic species roost at Monifieth and Tentsmuir Point. Numbers vary (Table 2) with arrivals from late July, building to a peak of 150 in December and departing by early May. Counts of 600 have occurred in a few winters. At low tide, feeding birds remain in the outer firth near the roosts.

Dunlin *Calidris alpina*

Dunlins are highly mobile and easily disturbed. Fluctuations in winter on the Firth of Tay and Eden Estuary suggest a degree of movement between the two wetlands and perhaps to other estuaries. On the firth, birds begin to arrive in late August, building to a peak in January and followed by a rapid decrease in March. Annual variation has been substantial, with the main roost site changing with time (Figure 7). Winter numbers have declined this century (Table 2) and most winters from 2005 to 2013 held only around 500 birds in total. However, 2,760 were counted at Tentsmuir Point in February 2017, the highest count for 20 years. The previous peak was of 5,151 in January 1993, coinciding with very high river levels. Several hundred migrants of Arctic breeding populations occasionally accompany migrant Ringed Plovers as late as May.

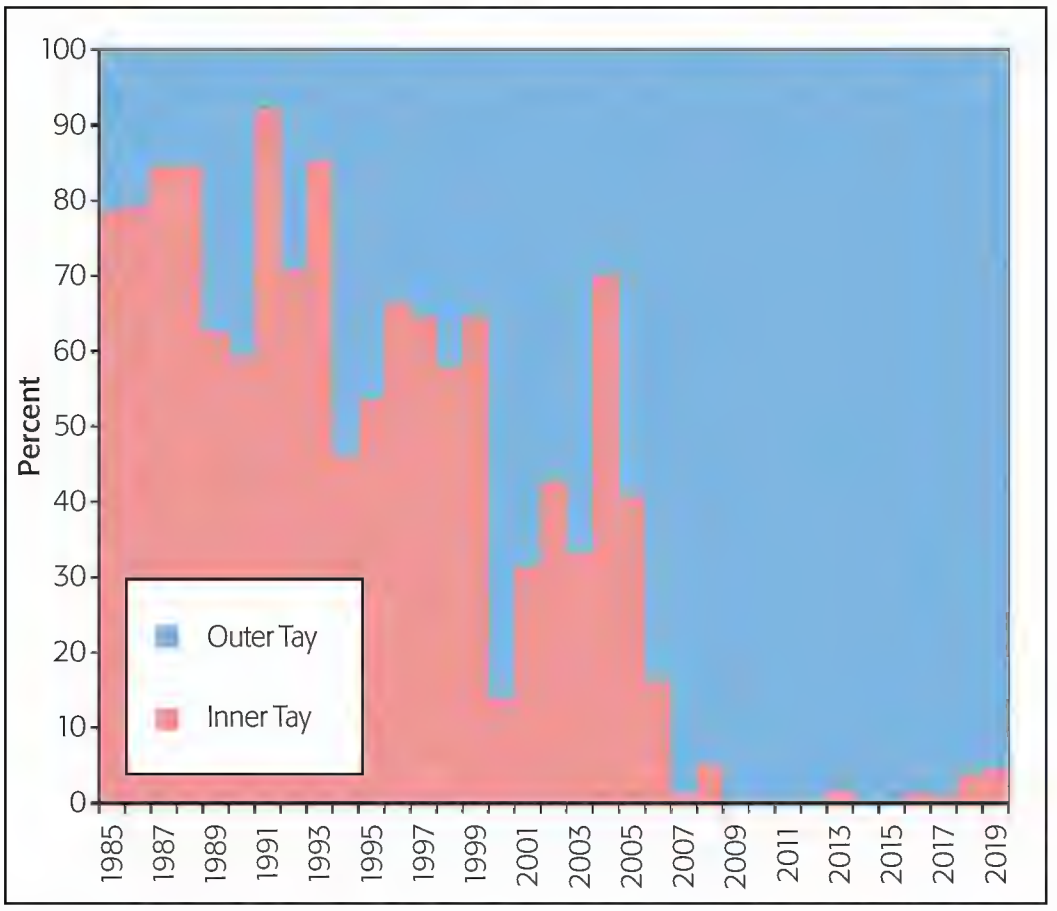

Figure 7. Percentage of Dunlin roosting in winter in inner (red) and outer (blue) firth.

Historically, the Invergowrie roost has hosted the majority of the Dunlin winter population. There is no clear reason why the species should have deserted this roost after 2006 as this has not been the case with other species *e.g.* Redshank. At low tide, concentrations occur in the vicinity of the main roosts, with a peak of 5,195 in February 1997. This was 70% higher than an almost concurrent core count that month, which supports the view that there is considerable interchange between estuaries. Many fewer were found this century in the inner firth, reflecting the reduction in roosting birds there (Figures 7 & 8).

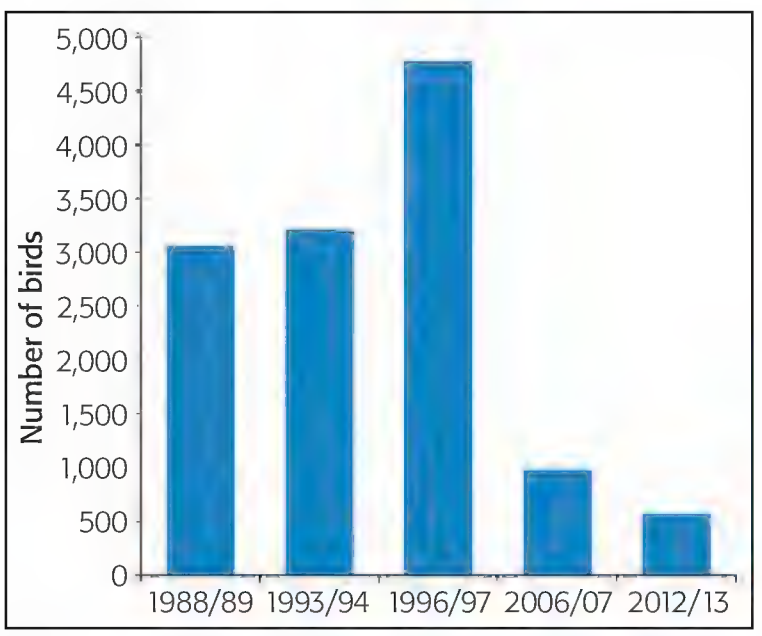

Figure 8. Maximum winter counts of Dunlin in the inner firth at low tide. (the count for 1988/89 is for January only, from Laing & Taylor 1993).

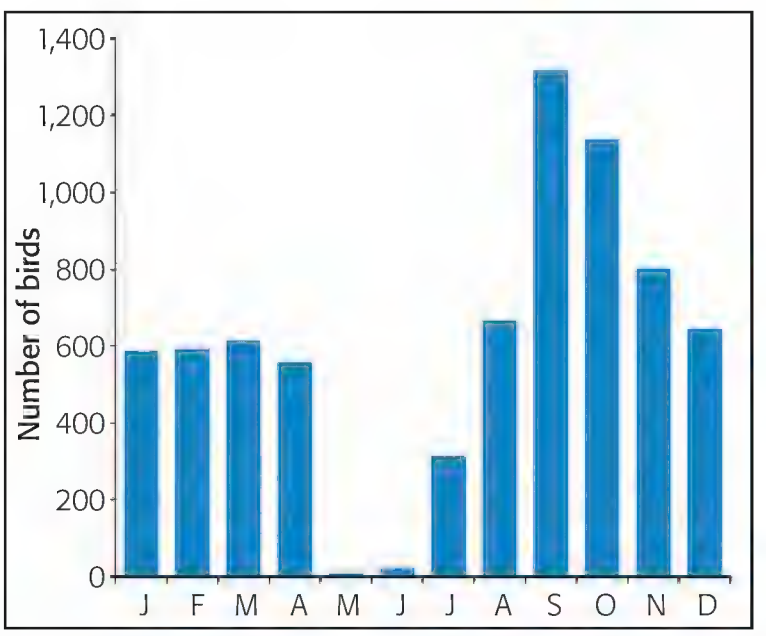

Figure 9. Average monthly counts of Redshank roosting in the Firth of Tay.

Redshank *Tringa totanus*
Prior to 2003, winter counts often exceeded the criterion for national importance, but have since declined (Table 2). The maximum monthly count in winter was of 1,774 in February 1993 but autumn numbers in the 1990s were far greater with 5,358 in September 1996, doubtless including migrants (see Figure 9). Birds depart rapidly from mid-April. The Invergowrie roost is the most favoured; 90% of birds roost there in autumn, decreasing to 60–70% in winter. The main concentration at low tide is also in that vicinity with counts of feeding birds in the same order as roost counts.

Wildfowl

Although wildfowl are counted at both high and low tides, many remain beyond the vision of counters so total numbers are rarely known. Winter low tide counts are rather more comprehensive, as many undetectable at high tide are then within sight. Comparisons of high tide and low tide counts are therefore irrelevant.

Mute Swan *Cygnus olor*
Non-territorial and moulting flocks are found chiefly in the vicinity of Monifieth and Mugdrum. The outer firth flocks peak in July and August, and often exceed 200 in total. Smaller numbers are found in the inner firth between June and September. In the last decade numbers in the outer firth have declined, but this has been somewhat offset by higher numbers off Mugdrum. As disturbance in the outer firth has increased in recent years, this suggests a move to quieter waters, but birds also commute to adjacent farmland.

Shelduck *Tadorna tadorna*
Winter flocks remained generally between 50 and 60 until 2009 after which they increased to over 100. The greatest numbers are in late winter and spring (Figure 10) with a peak of 248 in February 2015. Most birds feed at low tide on mudflats off Tayport, although further birds are scattered throughout the firth.

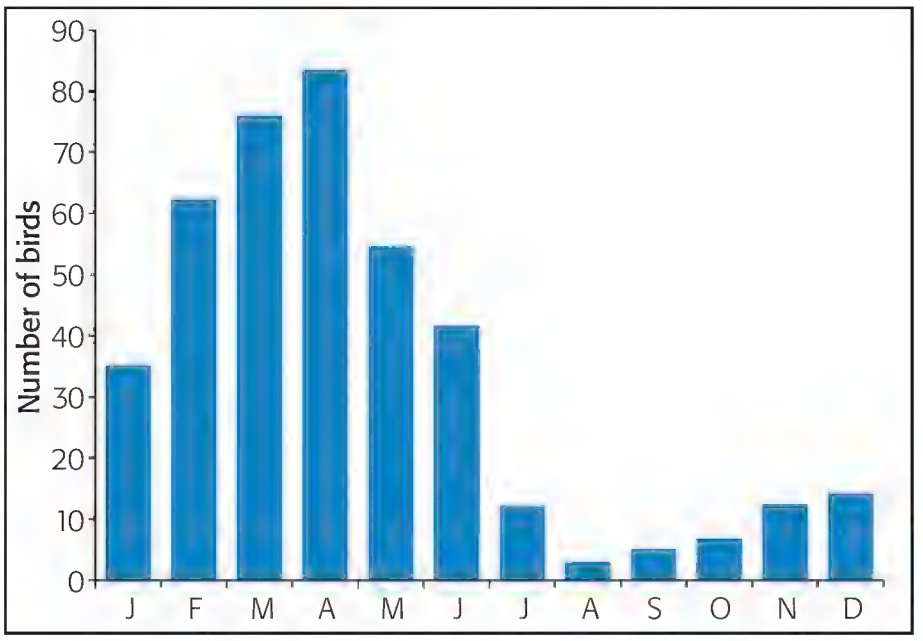

Figure 10. Average monthly counts of Shelduck at high tide in the Firth of Tay.

Wigeon *Mareca penelope*
Wigeon arrive for the winter in September, the main flock congregating off Tayport, where birds feed on the saltmarsh margins at high tide. The maximum is reached in late autumn, with 747 there in October 2005, falling to a winter average of 150–200. Flocks are also found in the inner firth, especially near Mugdrum, where the peak was 490 in November 2018. By May, all but a few have departed. At low tide, most are found in the outer firth and around Mugdrum.

Mallard *Anas platyrhynchos*
Although present all year round, fewer than 100 are found in summer. Numbers reach a maximum in winter, regularly exceeding 1,000 until the mid-1990s. There has since been a steady decline to between 200 and 400. Mallard are most abundant around Tayport and along the inner firth reedbeds. At low tide, birds spread throughout the firth. Comparisons between low and high tide counts in the same winter months suggest that many remain uncounted at high tide along the reedbed margins.

Teal *Anas crecca*
Teal can be rather secretive and counts vary from winter to winter. Birds begin to arrive in September, building to a maximum in January. The largest counts are made in the inner firth, especially around Mugdrum. As with Mallard, many are thought to remain hidden at high tide. Since regular counts at Mugdrum were resumed, winter numbers there have been between 200 and 500 with a peak of 749 in January 2015. Elsewhere winter averages now reach 100 to 400. Low tide counts indicate an increase since the 1990s when peak winter counts were only in double figures. Since then, concentrations off Invergowrie and Mugdrum, have peaked at 600.

Tufted Duck *Aythya fuligula*
This wintering species has shown both a sharp decline and a change in favoured locality. Up to 500 were recorded in the period before the winter of 1997/98 with most off Invergowrie. Only single figures were subsequently present but, since 2010, small numbers of between 30 and 60 have returned, mainly in the inner firth around Mugdrum.

Eider *Somateria mollissima*
The Firth of Tay is famous for its Eider flock, holding numbers of national importance (Frost *et al.* 2020). However, it is one of the most difficult species to count. Most remain on the water east of Dundee although some roost ashore at high tide. They move with the tidal flow and often extend far to the east and out of sight. Birds are present all year, but the highest numbers are between November and February when the flock is augmented by birds from elsewhere. In the early years, up to 20,000 to 30,000 were estimated but the few counts in recent winters have recorded between 12,000 and 13,000.

Goldeneye *Bucephala clangula*
Goldeneyes fluctuate in number with most frequenting the Mugdrum area. They arrive in October, peak in November and December and depart from April. Winter counts are frequently in the hundreds. There were many off Dundee in the 1990s but numbers there decreased significantly after 2003. The most recent low tide counts found concentrations only in the inner firth.

Goosander *Mergus merganser*
The number of Goosanders in the Firth of Tay exceeds the threshold for national importance (Frost *et al.* 2020), Birds begin to arrive in late May and build to a peak in August. These birds are moulting 'redheads', the majority being flightless females. The flock is present in the outer firth until September, with a few remaining into October. There was some identification confusion in the early years between moulting birds of the two sawbill species (see also Red-breasted Merganser), so Figure 11 shows average monthly counts from 1991. The peak was in August 2019, with 345 birds present. Lucky Scalp is a favoured roost but the flightless birds will swim to other parts of the outer firth and it is possible that some double counting has occurred. A few are present during other months. There is no evidence of any long-term change in numbers.

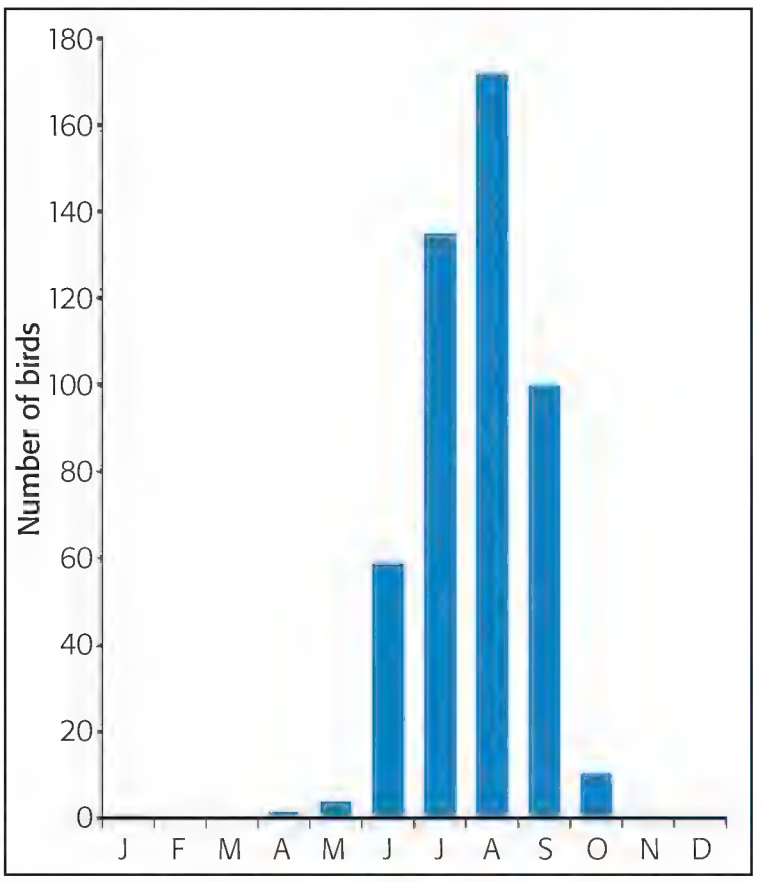

Figure 11. Average monthly counts of moulting Goosander in the Firth of Tay, 1991–2020.

Red-breasted Merganser *Mergus serrator*

Movement of this species in and out of the outer firth from St Andrews Bay makes the pattern of use of the firth irregular. Flocks of 100 or more occur in the bay and movements into the firth are greatest in spring, when up to 120 may be present. Otherwise most counts are only in double figures. The confusion with moulting Goosanders has also proved a problem, especially when counting distant flocks. At low tide, birds are present in small numbers throughout the firth but mostly in the outer reaches.

Other species

Cormorant *Phalacrocorax carbo*

Most Cormorants roost at Tentsmuir Point, Lucky Scalp, the Pile Lighthouse (400 m off Tayport) and the Tay Rail Bridge. Maximum numbers occur in autumn. As counts in every month have only been undertaken for Lucky Scalp, the Pile and Tentsmuir Point, Figure 12 shows the monthly average for these roosts only. At low tide, birds are scattered throughout but with concentrations in the outermost firth. Maximum winter low tide counts declined during the period but normally exceed core counts.

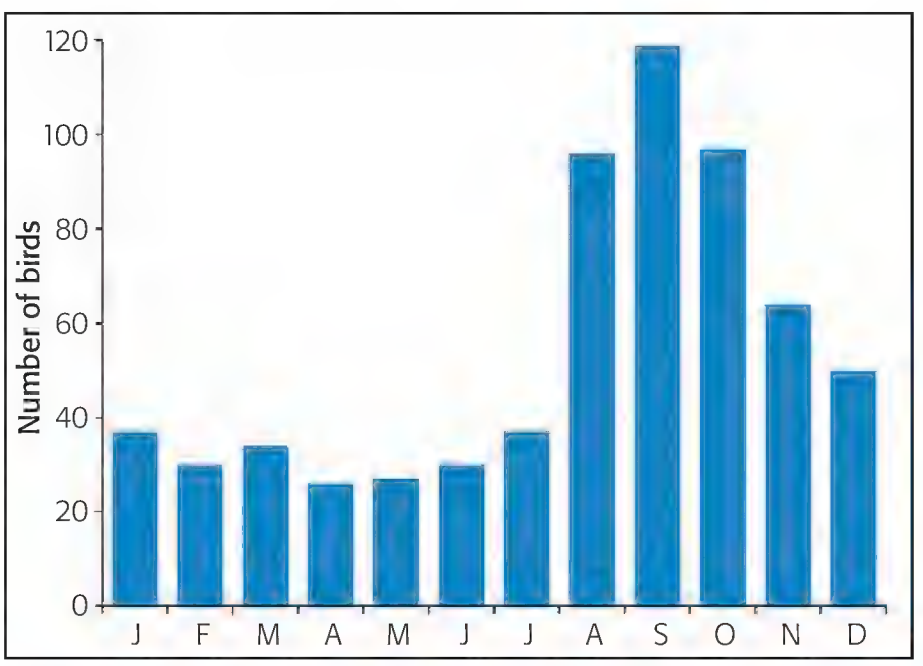

Figure 12. Average monthly counts of Cormorants at the Fife roosts.

Discussion

The above data demonstrate the importance of the Firth of Tay to roosting and feeding waterfowl. All-year-round counting has also highlighted the use of the firth as a staging area for several migrant species (see Figure 3), especially Ringed Plover and Redshank. The decrease in the winter wader population between 2006 and 2013 (Figure 2) is curious; there were insufficient missing data or any other factor in methodology (see caveats under Methods) to account for the temporary reduction but the lowest counts did coincide with severe winters. Disproportionate high (or low) numbers of one or more species (see text and Climate Change, below) will have skewed figures in Figure 2 (e.g. for Oystercatcher).

With a tidal range at spring tides of 5.2 m, the area exposed at low tide is approximately 38 km^2. However, the most productive wader feeding sectors are much smaller. Most favoured are the mussel beds off Monifieth and Lucky Scalp and the rich areas of invertebrate fauna off Tayport and Invergowrie. Comparison of high and low tide counts, normally within a week of each other, implies considerable movement in and out of the firth, even accounting for the differences in procedures (see Methods). Some discrepancies, mainly concerning Lapwing, Golden Plover and Curlew, are believed to be interchanges with adjacent farmland.

The pressures on the waterfowl population of the firth are several, the main influences being:

Climate change

This affects both breeding and wintering ranges. The decline of some Arctic breeding birds wintering in Britain is thought to be due to the short stopping of migrants in regions where the winter climate is now less harsh than before, thus reducing the numbers found here (Maclean *et al.* 2008). Their breeding productivity, often affected by climate, also influences the size and composition of wintering populations, with the proportion of juveniles lowered by adverse conditions on the breeding grounds.

The regional climate of the Firth of Tay was relatively benign during the review period, with only three severe winters. Two occurred in 2009/10 and 2010/11, the second of which was the coldest winter of the period. There were extensive ice floes on the Tay, perhaps amplifying, but not responsible for, the short-term anomaly shown in Figure 2.

Future rises in sea level are likely to limit wader feeding areas and to degrade roost sites. The highest tides already displace roosting flocks, and sea level rises along this coast could be up to 0.2 m by 2040 and 0.6 m by the end of the century (Palmer *et al.* 2018). The effects of both high tides and rising sea levels are intensified by onshore gales and low atmospheric pressure but any prediction of a future increase in storminess in the U.K. is currently inconclusive (www.metoffice.gov.uk/weather/climate-change/effects-of-climate-change).

The River Tay is unique in having the greatest discharge of any UK river, so that excessive rainfall and melting snow in its catchment area of 5,200 km^2 can cause abnormally high water levels in the relatively narrow firth. As winter rainfall is predicted to increase, such events are expected to become more frequent. When they coincide with a very high tide, roosts are swamped, forcing elevated numbers of waders to roosts remaining above water. This is implicated in some of the highest winter counts described (see Oystercatcher, Knot and Dunlin).

For example, the winter of 2015/16 was the wettest in eastern Scotland in the past 150 years (https://www.metoffice.gov.uk/pub/data/weather/uk/climate/datasets/Rainfall/date/Scotland_E.txt.).

A sudden increase of roosting birds in such events (see Figure 2 for the winter of 2015/16) indicates a significant influx from elsewhere. High river levels also submerge some wader feeding sites at low tide.

Pollution

Water quality data have shown that pollution has declined since the mid-1980s due to a combination of reduced discharges from industry, wastewater treatment plants and agricultural run-off. This may have had both positive and negative effects on invertebrate food supply, perhaps affecting some species more than others. For example, the clean-up of the local raw sewage outlet off Invergowrie after 2001 may be implicated in the decline of the Dunlin roost there.

Disturbance

Some of the major fluctuations of individual species are due to disturbance, forcing some to relocate within or away from the firth. Along the shores at the firth's entrance, dog walkers, power boats, kite surfers and jet skis often disturb the outermost roosts and, to a certain extent, the wildfowl offshore. Several of these problems occur throughout the year and can cause major disruption. This is particularly relevant in the NNR at Tentsmuir Point where there is minimal current protection from disturbance. On the north shore, the closure of Barry Sands (east of Monifieth) when firing takes place at the military ranges prevents human access and allows roosting birds some respite. The Lucky Scalp roost can be displaced in summer if approached by boats but is mostly free of disturbance in winter. Both the airport and harbour at Dundee have been subject to development during the period and have modified the local environment. Limited wildfowling occurs in the Mugdrum area.

Conclusions

The Firth of Tay is an important wetland, one of a series of estuaries along the east coast of Scotland where their significance to waterfowl is recognised by national and international conservation designations. Latest figures show it to be the thirteenth most populated Scottish estuary in winter (Frost *et al.* 2020). The wide range of conditions - tidal, river flow and food resources - give rise to considerable variation in wader populations in time and magnitude. However, the

environment for most species is deemed to be relatively favourable in the SPA as a whole. Any noteworthy declines, such as for Bar-tailed Godwit, are considered to be for reasons other than conditions in the SPA (Woodward *et al.* 2019).

The continuation of regular monitoring by WeBS is of the utmost value in highlighting the changes in numbers of the principal species and their preferred roosting and feeding sites. This informs potential threats such as development affecting those sites and the disturbance that has become an increasing problem. Discussions with statutory bodies and other relevant parties have stressed the changes shown during this review and it is hoped that those bodies will remain vigilant to the recognised impacts.

Acknowledgements

The data used in this paper are from Wetland Bird Survey (WeBS) counts gathered during fieldwork conducted by volunteers. WeBS is a partnership administered by the British Trust for Ornithology (BTO) and funded by the BTO, the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee (JNCC), in association with the Wildfowl and Wetlands Trust (WWT), These bodies deserve our thanks for providing us with the long-term task of counting a fascinating stretch of tidal waters.

Plate 165. Tayport saltmarsh and mudflats looking north-east, March 2014. © *Norman Elkins*

I am grateful to David Bell for sharing his deep knowledge of the firth's natural environment and to Allan Brown for helpful suggestions. Bruce Lynch was an invaluable collaborator in the early years. The counts on the Firth of Tay are due to the hard work of a multitude of counters, frequently in adverse weather. Some have sadly passed away and, apart from the author, those involved for long periods are (in no particular order): Bruce Lynch, Wendy Mattingley, the late Donald Stewart, Ian Smart, Sylvia Kemp (née Laing), Peter Kemp, Dave Bell, the late Steve Fulford, Dave Ferguson, Paul Blackburn, the late Dan Carmichael, Garden Johnston, Paul Taylor, Andre Theil, Les Hatton and Simon Hayhow. Many others assisted for shorter periods, for both core counts and low tide counts, and my apologies to those I have not named - your input was just as valuable.

This paper was written during the coronavirus pandemic. I must therefore thank those dedicated souls who resumed counting as soon as lockdown rules were eased. Only April and May 2020 were missed in their entirety. March and April 2001 had been similarly missed due to the foot-and-mouth epidemic.

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Revised ms accepted February 2021

Plate 166. Mute Swan nest, Viewforth, Edinburgh, 25 May 1978. Nesting under any circumstances! © *Allan Brown*

The Mute Swan breeding along the Union Canal in Edinburgh and West Lothian 1978 to 2020

A.W. BROWN, L.M. BROWN & W.N.H. RENWICK

A study of the Mute Swan population in the Lothians from 1978 to 2020 included a detailed assessment of the nesting population along the Union Canal within West Lothian and Edinburgh. This identified an increase from one nesting pair in 1978 to a peak of 11 pairs in 2001 followed by a decline to one pair again by 2015 with a subsequent increase. This pattern differed to that recorded for the Lothian's nesting population as a whole. The re-opening of the Union Canal to boat traffic in 2001 was thought to have had a detrimental impact on the nesting population because of increased levels of disturbance and impact upon food supply.

Introduction

The number of pairs of Mute Swans *Cygnus olor* that bred in the Lothians steadily increased from 1978 to 2003 and subsequently decreased until 2011 since when it remained fairly constant (Brown & Brown 1978–2018). Whilst the number of pairs that bred in river and still water territories reflected that trend, the number that bred in canal territories continued to decline until only one pair bred in that habitat in 2015. Thus, an overall population trend could mask differences amongst components of the population. In order to determine why the number on the canal declined, and if it was due to factors regarding the swans or the canal or both, data collected from individually colour ringed swans were analysed and changes to the structure and use of the canal considered.

Study area

The 37 km section of the Union Canal subject to this study extended from the Avon Aqueduct, at the boundary of West Lothian and Falkirk Councils, to Edinburgh Quay. The Union Canal opened in 1822 when it measured 51 km in length and extended from Port Hopetoun in central Edinburgh to Port Downie in Camelon near Falkirk. In order to preclude the need for locks the canal was constructed along the contour line of 73 m above sea level to a depth of 1.5 m and a maximum width of 11.3 m and it carried both commercial and passenger traffic (Hutton 2002). Official closure to commercial traffic occurred in 1933 (Hutton 2002) and in 1965 the canal was closed to navigation with subsequent deterioration in its condition, blockages formed by new roads and culverts and many sections became overgrown with vegetation (Hutton 2002). Following major refurbishment works, including removal of culverts and realignment and reconstruction of some sections, the canal re-opened in 2001 and was re-connected with the Forth and Clyde Canal following the opening of The Falkirk Wheel in 2002 (Hutton 2002, British Waterways Board 2004).

The earliest recorded data for the presence of Mute Swans on the canal in the Lothians refer to 1953 and 1954 when three and six pairs respectively were recorded (Rawcliffe 1954) whilst a national census in 1955 recorded 11 pairs (Rawcliffe 1958) and 12 pairs were recorded in the 1961 national census (Rawcliffe pers. comm. and Eltringham 1963). An Edinburgh survey in 1957–58 recorded three pairs in both years (Macmillan 1958a & b) whilst a survey of Midlothian and East Lothian in 1977 identified only one pair (Vick 1977). The Union Canal was integral to a study that commenced in 1978 of Mute Swans in the whole of the Lothians and thus encompassed the period before and after 2001 when the canal was reopened to through traffic. The study involved counts of territorial and breeding pairs and non-breeding individuals (Brown & Brown 1978–2018 and unpublished data) together with ringing of breeding adults and their young from 1982. Within the study non-territorial swans comprised around 60% of the total population (Brown & Brown 1999 and unpublished data) which provided a pool of swans with the potential to supplement the breeding population (Brown & Brown 1999 and unpublished) and included individuals with a diverse range of ages, breeding experience and natal origins. Mute Swans commence breeding occasionally at the age of two years but generally from the age of three years (Birkhead & Perrins 1986).

Methods

Methods of counting the numbers of breeding swans in the Lothians since 1978 and the classification of waterbodies occupied by breeding pairs by habitat type as either canal, river or still water were described elsewhere (Brown & Brown 1984) but involved identification of all nesting pairs every year and following their progress through to the number of young fledged. Ringing and colour ringing of individual swans commenced in 1982 (Brown & Brown 1982–2018 and unpublished data). A nesting pair was defined as one that built a substantial nest (Brown & Brown 2002). The survey methodology identified that the location of nests within specific sections of the canal were generally similar in every year when those sections were occupied by a nesting pair. Based on those nest locations, the canal was divided into 25 territories (Figure 1). Each territory was occupied at least once during the study period by a pair of swans that nested. Territories were unequal in length and removal of blockages may have altered the length of some of them.

During the study period three phases of change occurred in the number of pairs that bred on the canal namely an increase, a decrease and, subsequently, another increase. For each phase two sets of data for ringed birds were analysed, the initial pairs that bred in each territory and the last pairs that bred in each territory. As the number of pairs in the Lothians overall was low in the early years of the study the number of ringed individuals was also low, but this increased as the population increased. However, as the number of nesting territories on the canal increased from one to 11 and subsequently decreased to one again, the data within each data set were small. Whilst this was insufficient for statistical analyses the data were sufficient for patterns of diversity or otherwise to be investigated in each phase of change. Data on nesting swans on the canal were

generated from individual swans which had been ringed as cygnets at their natal site and included age, previous breeding experience, habitat of their natal territory and distance between natal territory and canal breeding territory. These data were used to determine which of those factors, if any, had an impact upon the breeding population on the canal.

Figure 1. Map showing the Union Canal study area within West Lothian and Edinburgh with the location of territories identified from 1978 to 2020.

Results

The number of pairs that bred along the canal did not begin to increase until 1984, peaked by 2001 then subsequently declined before beginning to increase again from 2016 (Figure 2). There were annual fluctuations throughout the study period thus trends were not constant and despite an initial period of occupation many territories were not consistently occupied thereafter (Table 1). During the initial increase between 1978 and 2001 many territories were occupied for the first time, however four territories were also abandoned during that time. In addition, whilst 16 territories were abandoned during the period of decline from 2002 three territories, in the recently re-constructed Murrayburn section of the canal, were occupied for the first time.

The initial increase in the number of pairs that bred on the canal did not occur sequentially in a westward direction from the single pair that bred at the eastern extremity of the canal at Viewforth in Edinburgh during the earlier years of the study (Table 1). The initial increases occurred at Linlithgow and territories west of there, followed by Philpstoun then Broxburn and Sighthill. Territories just west of Viewforth were occupied during the late 1990s. Nesting territories in the Wester Hailes to Murrayburn area were the last to be occupied, in 2003, shortly after construction of

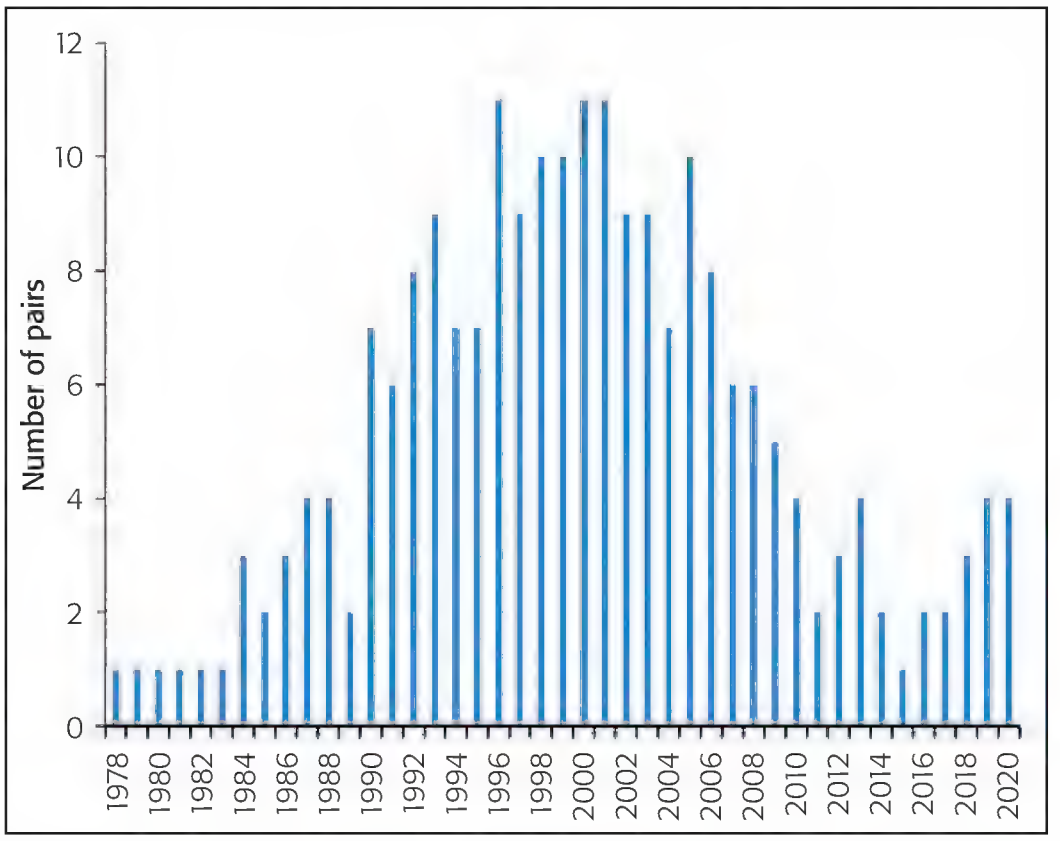
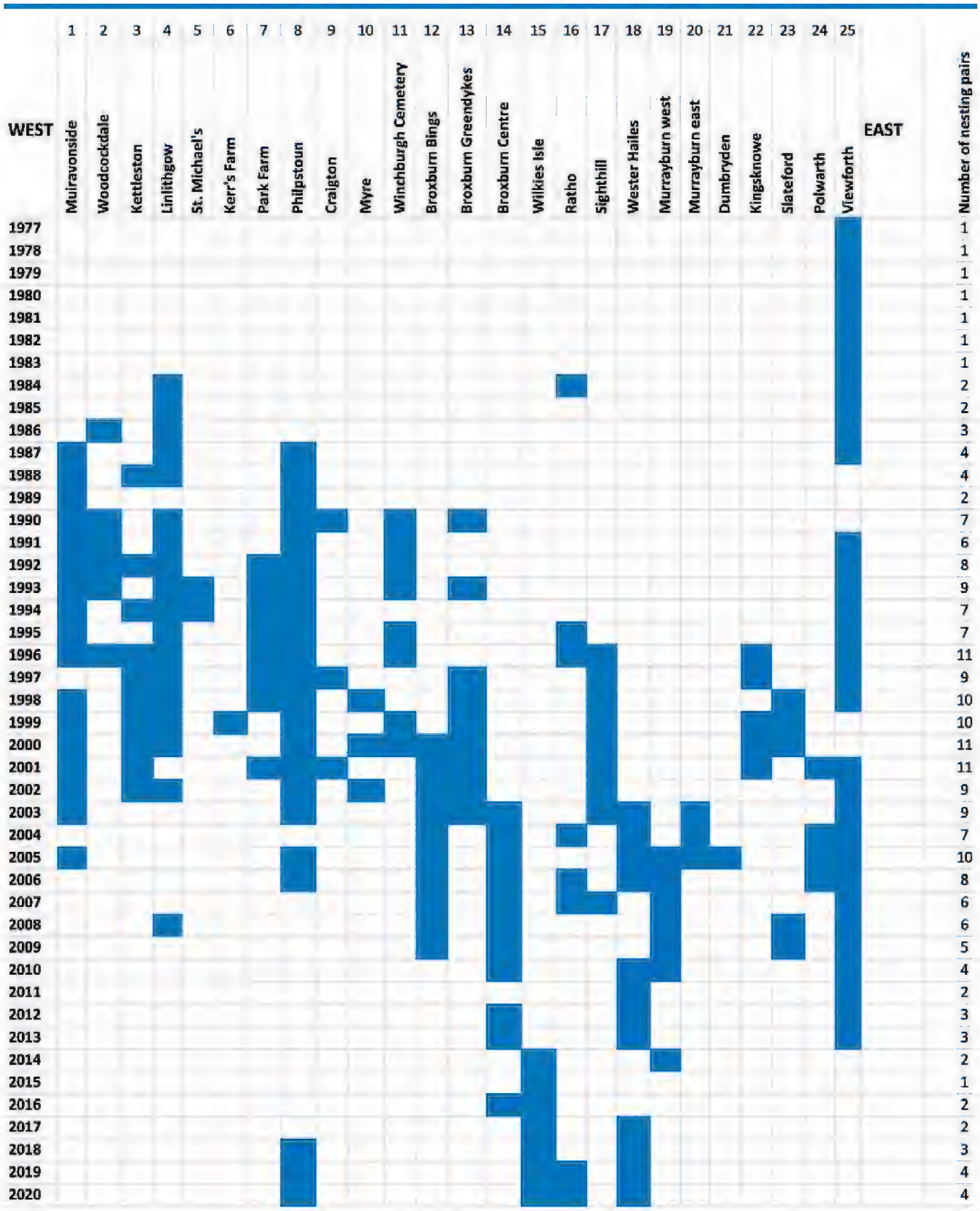


Figure 2. The number of nesting pairs of Mute Swans along the Union Canal in Edinburgh and West Lothian, 1978 to 2020.

Table 1. Pattern of use and occupancy of Mute Swan nesting territories along the Union Canal in West Lothian and Edinburgh 1978–2020. Locations refer to the sites shown in Figure 1 from west to east along the canal.



that section of the canal was completed. The original section there had been culverted and covered over by housing. The decline in the number of pairs that bred after 2001 occurred gradually over a 15-year period rather than abruptly within a year or two and additionally did not mirror the initial pattern of expansion. Breeding territories in the Linlithgow and Philpstoun areas that had been occupied during the early years were generally the first to be abandoned rather than the last

(Table 1). In contrast to the pattern with the initial expansion nesting territories occupied during the second increase were not at the extremities of the study area. Although the territory at Viewforth persisted until 2013 it was subsequently destroyed by a housing development. Many territories were occupied by a number of different pairs during the study period e.g. six at Broxburn centre, ten at Muiravonside and 11 at Viewforth, which indicated that there was a supply of swans to fill some territories as they were vacated.

The distance between natal territory and nesting territory on the canal was not a limiting factor in the ability of swans to nest on the canal (Table 2). Whilst males tended to breed further from their natal territory than females there was a wide range in distances between natal and breeding territories amongst both sexes in most phases. One individual originated from Auchtertool in central Fife and another from Thurston Pond in south-east East Lothian.

Table 2. Distance between natal and breeding territories of Mute Swans along the Union Canal in Edinburgh and West Lothian for the first and last pairs in each phase of population change 1978–2020.

Pairs	Phase	Sex	Average distance (km)	Range (km)	Number of birds where distance known
First	Increase 1978 to 2001	Male	12.9	1 to 24.3	6
		Female	5.7	0.6 to 21.3	12
	Decrease 2002 to 2015	Male	23.4	9.1 to 51.7	4
		Female	2.5	0.8 to 4.2	3
	Increase 2016 to 2020	Male	9.2	4.4 to 9.2	1
		Female	7.0	4.8 to 9.2	2
Last	Increase 1978 to 2001	Male	5.2	1.0 to 11.6	3
		Female	4.7	0.6 to 16.8	6
	Decrease 2002 to 2015	Male	5.2	1.6 to 10.2	8
		Female	4.2	0 to 21.3	13

The age at which swans commenced to breed on the canal ranged widely and was not confined to a specific age group. The average age amongst the last pairs during the period of decline was relatively high, especially in comparison with the Lothians population (unpublished), which suggested that some may have previously bred elsewhere at unknown locations outwith the Lothians study area.

Table 3. Age of first breeding of male and female Mute Swans along the Union Canal in Edinburgh and West Lothian for the first and last birds in each phase of population change 1978–2020.

Pairs	Phase	Sex	Average age (years)	Range (years)	Number of birds where age known
First	Increase 1978 to 2001	Male	4	2 to 8	7
		Female	7	3 to 15	14
	Decrease 2002 to 2015	Male	5	3 to 7	4
		Female	6	4 to 8	3
	Increase 2016 to 2020	Male	4	4	1
		Female	4	4	2
Last	Increase 1978 to 2001	Male	7	3 to 17	5
		Female	7	4 to 12	6
	Decrease 2002 to 2015	Male	9	5 to 17	11
		Female	9	4 to 16	12

The natal habitat of both the initial and last pairs of nesting swans in each phase included canal, river and still water (Table 4) thus recruits to the canal nesting population were not limited by the habitat of their natal territory nor therefore dependent on successful productivity of those pairs that bred along the canal.

Table 4. Natal habitat of swans that nested along the Union Canal in Edinburgh and West Lothian with regard to the first and last pairs in each phase of population change 1978–2020.

	Phase	Sex	Canal	River or still water
First	Increase 1978 to 2001	Male	6	0
		Female	8	4
	Decrease 2002 to 2015	Male	1	3
		Female	2	1
	Increase 2016 to 2020	Male	0	1
		Female	1	1
Last	Increase 1978 to 2001	Male	2	1
		Female	4	2
	Decrease 2002 to 2015	Male	4	5
		Female	9	4

The opportunity to breed along the canal was not limited to individuals either with or without previous breeding experience. Amongst the initial and last pairs of nesting swans in each phase, of those with previous nesting experience that experience was not confined to canal habitat but included still waters and rivers e.g. one female previously bred at Riccarton Pond, Heriot-Watt University and a pair had bred at Dedridge Pond, Livingston.

No instances of unusually high mortality were recorded during the study period e.g. due to poisoning, predation or shooting. The initial pairs and the last pairs to occupy nesting territories vacated their territories primarily because one or both swans that comprised those pairs died or because the pair moved to another territory (Table 5). Most of the pairs that moved did so into another territory along the canal. Amongst the individuals that survived the death of their mate some also moved along the canal and bred with a new mate or remained in the territory and bred with a new mate (Table 6).

Table 5. Reason for abandonment of nesting territories of Mute Swans along the Union Canal in Edinburgh and West Lothian for the first and last birds in each phase of population change 1978–2020. m = male, f = female.

Pairs	Phase	Death of male and female	Death of male (m) or female (f)	Pair moved to a different territory	Unwell taken into care	Reason unknown	Total number of pairs
First	Increase 1978 to 2001	3	6 (3m 3f)	4		6	19
	Decrease 2002 to 2015	0	2 (2m 0f)	2		2	6
Last	Increase 1978 to 2001	1	2 (2m 0f)	1	1 (m)	2	7
	Decrease 2002 to 2015	4	5 (0m 5f)	6		3	18

Table 6. Subsequent movements of individual or pairs of Mute Swans along the Union Canal in Edinburgh and West Lothian for the first and last birds in each phase of population change 1978–2020.

Pairs	Years	Pair moved along canal and bred	Pair moved to still water or river and bred	Surviving swan moved along canal and bred	Surviving swan remained and bred	Surviving swan moved to still water and bred	Surviving swan did not breed again
First	Increase 1978 to 2001	4	0	1	3	1	1
	Decrease 2002 to 2015	2	0	0	1	0	0
Last	Incease 1978 to 2001	1	0	2	0	0	2
	Decrease 2002 to 2015	5	1	1	1	0	1

Discussion

Although 25 distinct territories were identified along the canal not all were in use for nesting on a regular basis and indeed less than half the territories were occupied at any one time even during the years when the number of nesting pairs was high. The range in the number of pairs that bred during the study, one to 11, was comparable to the range of one to 12 determined from historical date (Eltringham 1963, Macmillan 1958, Rawcliffe 1954, 1958) which indicated that under favourable conditions the canal east of the Avon Aqueduct was capable of supporting up to a dozen pairs of nesting swans.

The number of pairs that bred along the canal was low during the late 1970s and at that time both the number of breeding pairs and the number of non-breeding individuals in the Lothians study area were also low, the reasons for which were unclear (Brown & Brown 1984). Good productivity during subsequent years within the Lothians population likely contributed to the gradual but persistent increase in the number of pairs that bred in the Lothians and along the canal and overall canal territories were more productive than most still water or river territories (Brown & Brown 2002). In contrast, during the years of decline along the canal both the breeding and non-breeding sectors of the population in the Lothians were high and productivity remained high also, indicating that there was no shortage of swans to occupy vacant territories which implied that the canal no longer proved attractive to nesting swans. Results indicated that during periods of increase or decrease in the numbers of pairs that bred along the canal neither individual swans nor pairs were limited by natal habitat or the close proximity of their natal origin, age, age difference within pairs or previous breeding experience. Territories remained vacant along the canal which indicated that the canal became unattractive as a nesting habitat for swans. In addition, mortality did not solely account for the decline in the number of pairs that bred along the canal. Within the different phases pairs that were the last to breed in a territory and were not replaced, left their territory and bred elsewhere which strongly suggested that those territories had become unsuitable for breeding swans. This was particularly evident amongst the pairs that comprised the last pairs to occupy specific canal territories during the period of decline from 2002 to 2015 as some moved to a different canal territory. Given that during that period many territories were abandoned it was possible that their behaviour slowed the rate of decline in the number of pairs that bred along the canal.

Commencement of the decline in nesting pairs coincided with the re-opening of the canal along its entire length in 2001 and commissioning of the Falkirk Wheel in 2002 which enabled boats to travel through the breadth of central Scotland. Data from surveys conducted in 1955 and 1961, when boat traffic was limited, indicated that the numbers of pairs that nested in those years were comparable to the peak numbers recorded during the present study (Rawcliffe 1958, Eltringham 1961). This study has shown that the number of nesting pairs increased up to 2001 when the canal was reopened with a subsequent steady decline to 2015. Increased boat activity caused disturbance as swans could be chased some distance along the canal by boats when they met at narrow sections and separated adults and young (pers. obs.). Thus, increased human activity on the canal may have contributed to the decline. In addition, prior to reopening there was less opportunity for interaction between nesting pairs owing to blockages in the canal so conflicts were probably fewer compared with an open canal where birds would regularly have territorial disputes.

By 1976 the canal was considered to be a rich and valuable ecological corridor owing to its lack of use and reduced maintenance (Lothian Regional Council 1978, Sheldon 1979). The subsequent increase in nesting swans along its length after that date, coinciding with the increase in the Lothians as a whole, may have reflected the availability of a suitable food supply for swans. Following reopening and as boat traffic expanded it was noted that the water turbidity was high and that it appeared dark brown in colour (pers. obs.) probably due to

sediment disturbance by regular propeller action. High turbidity would have been detrimental to the growth of submerged vegetation and increased boat traffic may also have reduced growth of floating vegetation, an important food supply for young cygnets. Travel restrictions imposed in 2020, to limit the movement of people as a consequence of the Coronavirus pandemic considerably reduced boat traffic, turbidity declined, and the water became clear in many territories (Mayumi Yamaguchi pers. comm.).

As territories were vacated remaining pairs had access to greater lengths of canal and thus potential food supply which may have slowed down the decline in the number of pairs until these longer territories were eventually insufficient to sustain nesting pairs. The upturn in nesting pairs since 2015 may be a consequence of an apparent decline in boat traffic in recent springs owing to poor weather with consequent improvement in water quality. It remains to be seen whether this increase will continue if boat traffic recommences once coronavirus restrictions have been lifted and the breach of part of the canal at Muiravonside, after heavy rainfall in August 2020, has been repaired (https://www.scottishcanals.co.uk/news/union-canal-closure-breach-at-muiravonside/).

Well-intentioned and valuable improvements for leisure and recreational purposes may have unintended adverse impacts upon the established ecological value of a site. Biodiversity is an integral part of policies and strategies for the management of the Union Canal in which the various interests have to be considered and an appropriate balance promoted (City of Edinburgh Council 2011, Scottish Canals 2015, West Lothian Council 2020). The status of the breeding population of the Mute Swan on the Union Canal within the Lothians has been affected by a number of factors which have undoubtedly had an impact upon how the habitat is used by swans. Continued monitoring should determine if the recent upturn in breeding pairs is part of a new upward trend or if it is an artefact of changes in use of the canal which may intensify again and impact adversely upon the population. It is a process which could be applied to other biodiversity interests along the canal.

Acknowledgements

A large number of observers have contributed to this study, assisting with both the monitoring of nesting pairs and with the catching and ringing of broods, and their assistance is greatly appreciated. Special thanks go to John Helliwell, Rebecca Helliwell and Andrew T. Macmillan who provided regular and detailed observations over a number of years. The early years of ringing in the 1980s and 1990s relied on the assistance of Helen Aiton, Andrew W. Barker, Ian Chisholm, Neville Crowther, Alan Heavisides, the late Ray D. Murray, Ian R. Poxton and Chris J. Spray (who also provided the rings during the first few years of ringing) whilst Mike Betts and David Flint provided invaluable support from the 2000s. British Waterways are also thanked for permission to catch and ring swans on the canal. We thank Ian J. Andrews for preparation of the map.

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Nuthatches feeding on birch sap

Two Nuthatches *Sitta europaea* were observed feeding for 20 minutes in Corstorphine Hill Nature Reserve, Edinburgh, on the afternoon of 19 April 2020. The sap was running from a series of horizontal gouges in the bark of two Silver Birch *Betula pendula* trees. The birds were seen repeatedly probing the holes. The holes were superficial in depth, horizontal in nature and at a height of three to five metres. It was unclear to what extent the probing was producing the gouges, but these appeared to have been freshly made. The birds' positioning (Plates 167 & 168) was also consistent with these having been produced by the Nuthatches as this would have allowed the bill to be pushed forwards gouging out the groove in the process. The gouges were distinct from the ringing of trees by some woodpeckers, in which a series of regularly spaced holes is produced to access the sugary sap (Winkler *et al.*, 1995, p.24).

Nuthatches mainly feed on insects and other invertebrates, found on or under the bark (Matthysen, 1998); Obeso (1988), for example, reported that invertebrates accounted for 63.1% by volume of the stomach contents of 78 Spanish nuthatches. The diet and therefore the stomach contents, however, vary with season (see, for example Ceballos, 1969). Among their other, less common feeding habits, nuthatches of various species elsewhere in the world have also been reported to imbibe sap from sapsucker

Plate 167. Nuthatch probing for sap, Corstorphine Hill Nature Reserve, Lothian, 19 April 2020. © *Glen Cosquer*

wells (Bancroft, 1987; Dennis, 1981). In the Nuthatch, feeding on tree sap has been reported, where it exudes from birch, poplar and maple (Mylne, 1959; Glutz von Blotzheim, 1962 and Bardin, 1987) with Mylne's report from Suffolk, in April. This seasonal feeding behaviour is therefore similar to that shown by woodpeckers which have been shown to supplement their diet with tree sap in spring (Gibbs, 1983).

Given the recent arrival of the Nuthatch in Scotland (Forrester *et al,* 2007), it is hardly surprising that there have been few studies of their diet and no reports of feeding from tree sap; this therefore represents the first such report from Scotland. The bills of Nuthatches shorten during the winter months (October–April) when their foraging behaviour(s) subject the bill to more abrasion (Matthysen, 1998). As Nuthatches can hack at the shells of nuts and seeds and can feed under the bark of trees, it is therefore possible that they may use their bills to tap the superficial sap channels of birch and other trees and access the sap. It is unclear whether they can hear the sap rising in the same way that woodpecker foraging may benefit from hearing the movement of larvae under the bark (Leatherman, 2012, p.36; Winkler *et al.,* 1995, p. 23). The accessing of sap could be incidental to the probing of bark for insects but the possibility that they may know how to tap sap and do so intentionally warrants further study.

Plate 168. Two Nuthatches on a birch tree, Corstorphine Hill Nature Reserve, Lothian, 19 April 2020. © *Glen Cosquer*

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Sound recording for SBRC/BBRC record assessment

Songs and calls can often provide the best clue to a bird's identity. Members of some families of birds can look very similar to one another, and sometimes birds are not seen well enough to rely on visual cues for identification. Elusive, skulking warblers, flyover pipits, and flushed waders can frequently cause identification headaches, but luckily for us, they often have distinctive calls.

Until recently, documentation of bird calls was almost exclusively done through 'phonetic rendering' i.e. a written version of what the bird sounds like. Field guides still use these, but they have obvious limitations. We are restricted by our vocal apparatus - we simply can't make the same sounds as the birds, and language also plays a role in muddying the waters. For the same bird call, a Swedish author describes it as '*tsoeest*', a French author as '*psi-huit*', and an English-speaking author as '*tchu-wee*' in three different recent field guides. These descriptions (in this case, the call of the Yellow-browed Warbler) each read quite differently and so any phonetic rendering is subject to much interpretation.

In a similar vein, words we frequently use for describing bird calls, such as '*tak*', or '*pew*' do not capture any of the detail of the call such as its duration, frequency range, gradient, or the presence of modulations or harmonics. These details can be key to confirming the identification of the bird, especially when one species' vocalisations are similar to those of a confusion species. How different, for example, are '*tsi-uit*', '*dsu-weet*' or '*dsweet*' from the Yellow-browed Warbler calls listed above? Are they sufficiently different to confirm the identification of a Hume's Warbler? Fortunately, we no longer need to rely on phonetic renderings since we have access to technology that can document songs and calls, allowing us to describe the details of bird vocalisations with great precision.

Records committees frequently assess descriptions of rare birds containing photographs, yet it is still unusual for descriptions to be accompanied by sound recordings and sonograms. However, some submissions would have been hugely improved by such audio content. The key point here is that most observers now routinely carry a device that allows suitable documentation of a bird's call or song in many scenarios. Smart phones usually have voice-recording software, and these apps are more than adequate for documenting bird vocalisations within a particular range. Dedicated sound recording equipment is affordable (especially in comparison with high end binoculars and telescopes), and sound processing software is available free online, with much advice and guidance available too.

Potentially, the only obstacle preventing the birding community adopting modern means of documenting bird sounds is the long-standing culture of not doing so. In this piece I hope to simplify the process and give some useful pointers to those using sound files and sonograms to encourage their use in rarity documentation.

Using a mobile phone to document songs and calls

The voice recording apps in most smart phones can be surprisingly effective at picking up songs and calls in field conditions. The Siberian Chiffchaff calls below were recorded from a range of *c.* 20–30 m. It's not the clearest, cleanest recording in the world, but in terms of documenting the bird's calls, it is more than adequate. A smartphone should be able to record any call comfortably audible to your ear, so the range at which a phone will be effective depends on the volume of the call. The recording quality will be dependent on weather conditions (primarily wind) and the presence of other background noise. However, even if a recording sounds very poor, or the calls of interest are very quiet in the recording, it may still be possible to generate a worthwhile sonogram.

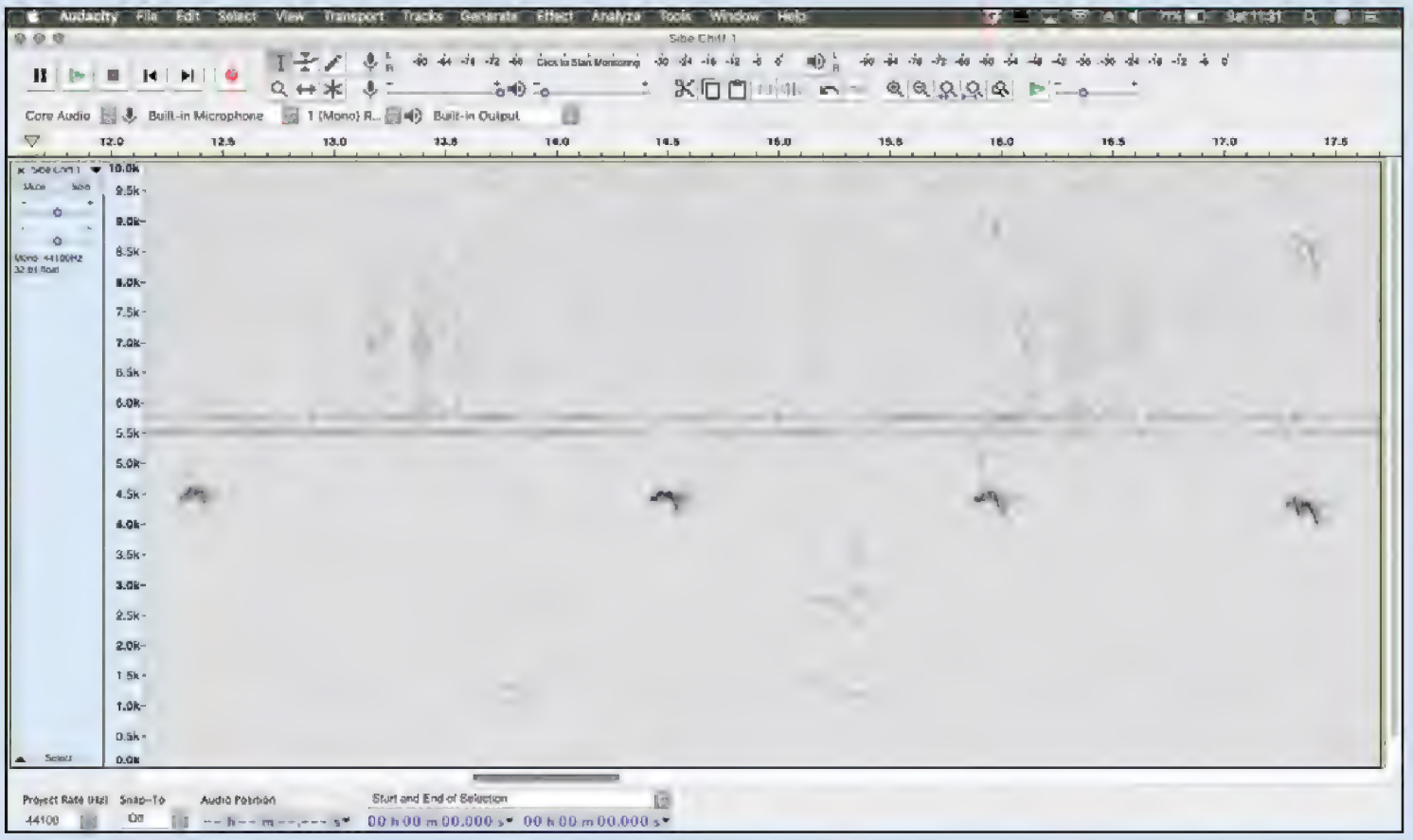

Figure 1. Sonograms of calls from a Siberian Chiffchaff recorded with an iPhone, Girdle Ness, Aberdeen, North-East Scotland in December 2016.

It's worth familiarising yourself with your phone's voice recording app so that you're ready for the time you need to first use it under field conditions. With most, it's simply a case of opening the app and hitting the 'record' button. Be aware that phone's microphones are not directional, and therefore pick up sounds equally from all directions. You can mitigate against picking up unwanted background sounds to some degree by putting your body between the phone and the unwanted noise source. Turning your back to the wind also helps generate a cleaner recording.

It's also worth working out how to get recordings out of your phone and into the computer in order to edit the recording and make the sonogram. This won't be the same for every phone or app, but generally the process will be to email the recording to yourself, and then access your emails on the computer. Here you can download the recording from your email and open it in your sound editing software. Sound editing software can be used to cut the track to the required length, eliminate unwanted noise, and to create sonograms. Instruction in how to carry out these edits and more can be found here: www.dropbox.com/s/j9ycbi188tghs5b/Audacity_guide.pdf?dl=0

Accessing recordings made from dedicated recording equipment is much simpler, usually done by inserting the recorder's memory card into the computer or connecting the recorder to the computer with a cable.

Audio from video

Video submissions of singing or calling birds (even where the bird is not visible) are useful since they present the vocalisations with some context of location. Where songs or calls are distinct enough, video may suffice. With video recordings where subtle calls need to be documented, or sound quality is poor, the video can be imported into Audacity (which automatically separates the audio file from the video) within which the observer can enhance the recording and produce sonograms. Audacity handles .MP4 files very well, which is a standard video format. Once sound has been isolated from video in Audacity, it can be exported as an .MP3 or .WAV sound file.

Submissions from nocmig and other autonomous recorders

With nocmig (nocturnal bird migration recording) and deployment of autonomous recorders for research or recreational use on the increase, assessment of records of unseen birds

will be inevitable. The beauty of this is that there should be no records that come without a recording and sonogram! These records should be submitted in the same way as any other, accompanied by the usual forms with details of dates, observers, etc.

Nocmig records generally consist of sequences of calls getting louder as the bird approaches the microphone and then quieter as it gets further away - or, of single calls from species that vocalise less frequently. Ideally, all calls pertinent to a record should be presented, so that the suite of sounds can be assessed. A sonogram of the suite of calls would be useful. However, if this is impractical, a series of sonograms showing the clearest, typical calls from the recording should suffice. Single calls can still be assessed, but bear in mind that recording quality, and the distinctiveness of the calls in question, might make acceptance of these, or even sequences of calls, difficult.

When submitting a nocmig or autonomous recording, it is useful for assessors to have several minutes on either side of the calls to hear if other species can be heard in the recording. Indicate the time that the sounds of interest can be heard (in seconds) into the recording. If submitting multiple sonograms, make it clear which calls are depicted (for example, with text such as 'sonogram A shows calls given between three and five seconds').

Supporting Evidence

Supplying supporting evidence for submissions is advised where recordings are the most useful (or only) form of documentation. Descriptions of the bird's appearance, or photographs are most useful, but other types of evidence can help provide context for a record, potentially making assessment easier. Examples of useful types of supporting evidence are given below:

- Video showing a singing bird (or simply a song) taken at the location.
- Photographs showing presence of other observers (take care to be GDPR compliant).
- Discussion of the observer's expertise on the songs/calls in question, or the songs and calls of confusion species.
- Supporting testimony from established experts.
- Demonstration of similar occurrences (e.g. geographically and/or temporally).
- Demonstration of significant prior nocmig effort.

However you obtain your recordings and generate your sonograms, there are a few golden rules for their presentation.

Golden rules for presenting sound files

- Ensure your sound file is in commonly used format - e.g. .MP3 or .WAV. If using a smart-phone, apps that record in these formats should be available via your usual app store.
- Alternatively, upload your file to an online repository and provide a link. Xeno Canto (.MP3 only) or the Macaulay Library (.MP3 or .WAV) are the most widely used.
- Leave a few seconds of 'dead air' at the beginning of your recording. This allows the listener's ear to get used to any background noise, which will make hearing the all important bird calls easier.
- Do not over-process your recording. Too much noise reduction or filtering can result in the calls you want to highlight sounding distorted.
- Supporting evidence is very useful.

Golden rules for presenting sonograms

- Make sure the frequency and time scales are visible in all sonograms and, if possible, that the calls of interest are sufficiently close to the axis so that the frequencies/durations can be easily read.
- If possible, annotate the sonogram to indicate the calls of interest. Export your sonogram as an image (or take a screen grab) and annotate in your usual photo editing software.
- If you have cut out dead air between calls to fit a selection of calls onto the sonogram, this should be indicated somewhere.

It can also be useful to provide sonograms of calls of potential confusion species. It is essential that these are presented at the same time and frequency scales as the sonograms of your recording of the call of interest. An example to illustrate why this is important is shown in Figure 2. When 'zooming in' to a sonogram in Audacity or similar software, you are only zooming in to the temporal scale. The sonograms shown below are all created from the same sequence of Siberian Chiffchaff calls

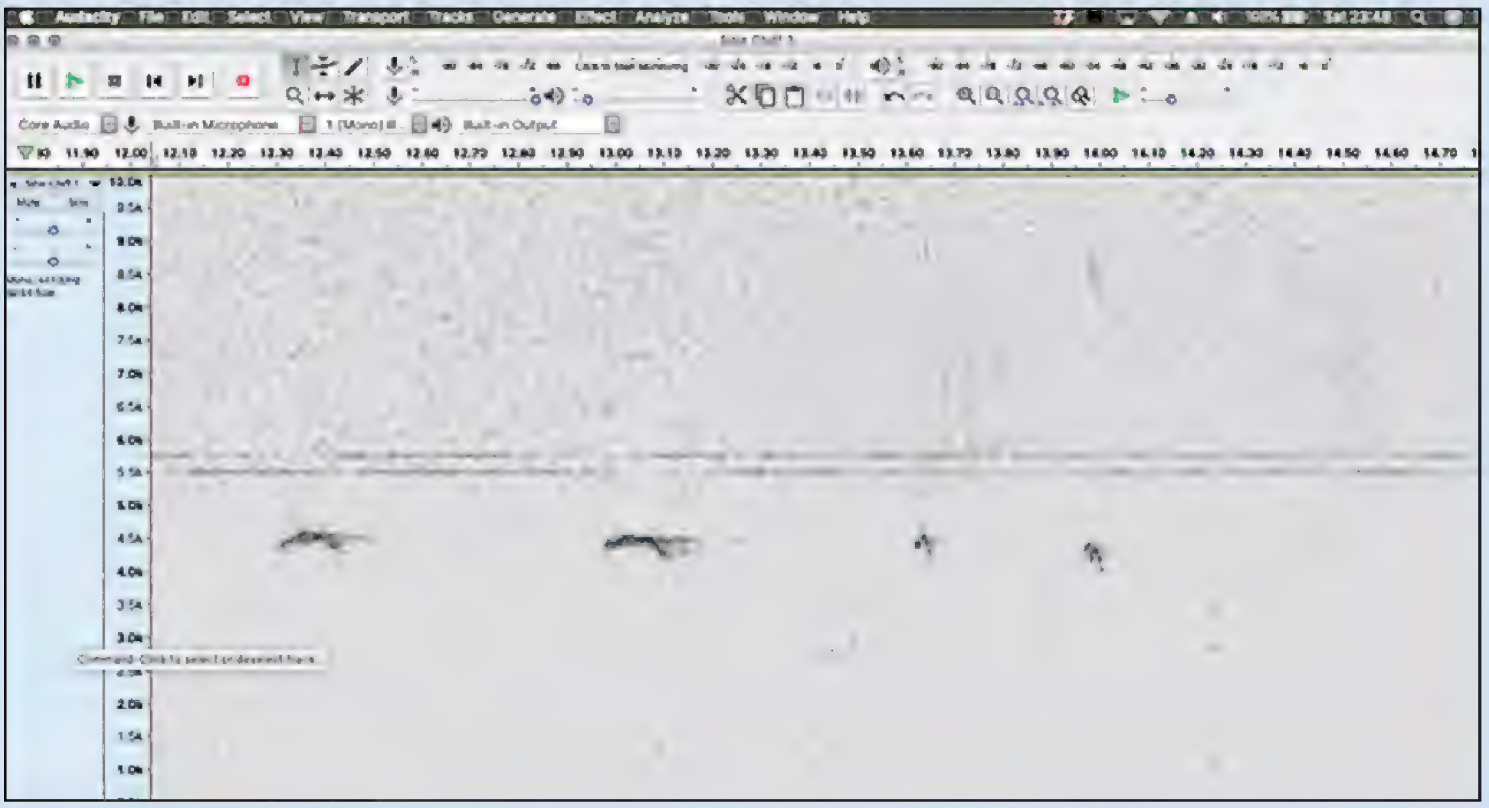

Figure 2. Sonograms of mobile phone recording of identical Siberian Chiffchaff calls, represented at different temporal scales, to illustrate how they can look substantially different. These are same as shown in Figure 1 and were recorded at Girdle Ness, Aberdeen, North-East Scotland in December 2016.

displayed in Figure 1. The two sonograms on the left are substantially more zoomed in than the two on the right. Note that not only do they look 'longer', they also look flatter and less arched than those on the right. Failing to represent sonograms of comparative calls at the same scales as your recording of interest could thus result in similar sonograms despite the calls being significantly different from one another.

Comparison sonograms

A comparison sonogram is a very useful way to demonstrate the key differences between the songs and calls of similar sounding species. The sonograms shown in Figure 3 were generated using a field recording of a poorly seen pipit at Blackdog, in Aberdeenshire, on 4 October 2020. Nick Littlewood, the observer, suspected that the bird was an Olive-backed Pipit, and comparison with recordings of known Tree Pipit calls supports this suggestion. By annotating comparison sonograms, the key differences between the calls was clearly demonstrated (Figures 3–5). These can form a crucial part of a submission to a records committee where calls of similar species need careful separation. Where possible, indicate in the notes the basis for the proposed sound based identification. Do not assume that members of the committee will know!

In Audacity, building a comparison sonogram with calls displayed at the same scales is straightforward. Import your recording of interest, and then import the recording(s) you want to compare it to. They should be displayed as separate horizontal tracks on the screen (as in Figure 3). You can copy and paste (by highlighting the parts you require and using the functions in the 'Edit' menu) parts of one recording into the other, and these will automatically be set to the same scales. Once you have what you require in one track, delete the other so you can display your comparison full screen. Copying elements of one track into another so they can be seen side-by-side allows comparison of frequencies and gradients of calls, as well showing any differences between the shapes and structures (e.g. Figures 4 and 5). If you want to compare temporal elements of sonograms of your calls, you can leave them 'stacked' in separate tracks, as shown in Figure 3.

Golden rules for submission

Once your recordings and sonograms are ready, you can incorporate them into your rarity submission to a records committee.

- If you have a worthwhile audio recording and useful sonograms, submit both.

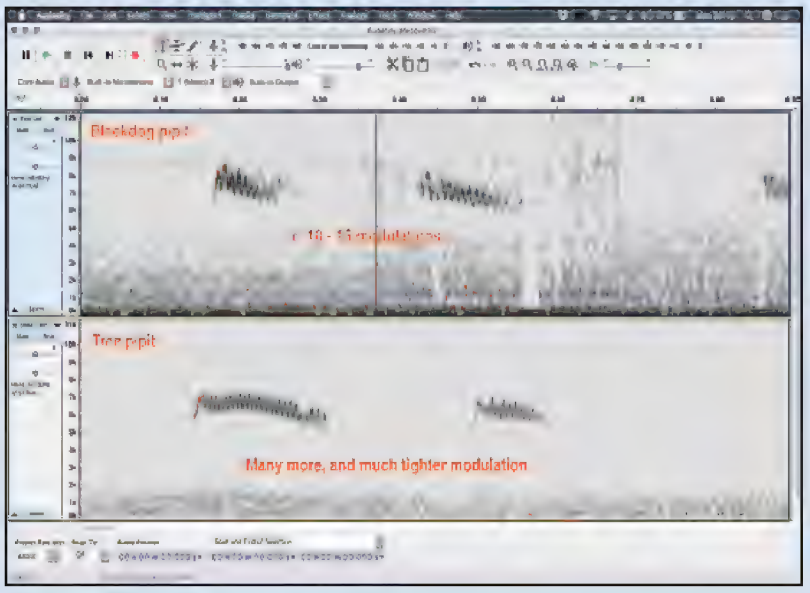

Figure 3. Comparison of sonograms of temporal elements of known Tree Pipit calls with those of a probable Olive-backed Pipit, the latter recorded at Blackdog, Aberdeenshire, North-East Scotland on 4 October 2020. © *Nick Littlewood*

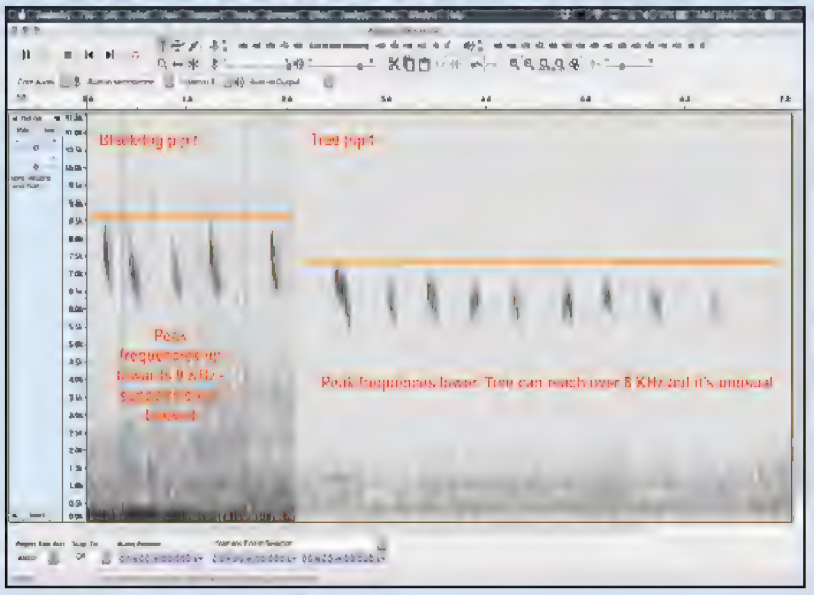

Figure 4. Comparison of sonograms peak frequencies of known Tree Pipit calls with those of a probable Olive-backed Pipit, the latter recorded at Blackdog, Aberdeenshire, North-East Scotland on 4 October 2020. © *Nick Littlewood*

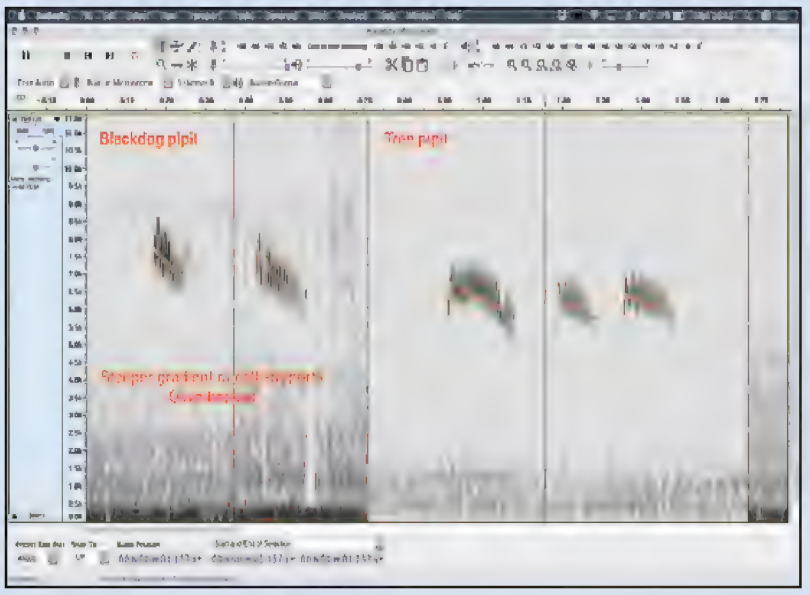

Figure 5. Comparison of sonogram gradients of known Tree Pipit calls with those of a probable Olive-backed Pipit, the latter recorded at Blackdog, Aberdeenshire, North-East Scotland on 4 October 2020. © *Nick Littlewood*

- Include details on the audio equipment used to make the recording, and the recording conditions (e.g. distance to the bird, whether it was windy, whether any playback was used).
- If you have edited your recording, describe the type of editing carried out. Where a recording has been edited significantly, supply the unedited original as well.
- With poorer or 'busier' recordings, it's useful to indicate the times (in seconds into the recording) at which the sounds of interest can be heard.
- Always submit rarities with the appropriate record form. For SBRC records this is available in Word and pdf formats here: https://www.the-soc.org.uk/bird-recording/rare-bird-record-form

Hopefully this article has demonstrated how useful recordings can be in terms of rarity documentation, and that it is straightforward to collect recordings and produce useful sonograms using modern devices. However, there may be additional benefits to sound recording rarities beyond enhancing a submitted rarity description. Primarily, sound recording a rare bird may reduce disturbance from observers keen to get photographs or see additional plumage features. This benefits the bird as well as others who may wish to see or hear it. Likewise, publishing audio recordings and sonograms, and using them in descriptions, will help to normalise sound recording and increase knowledge within the birding community. The key benefit, however, is the provision of detail that simply cannot be conveyed in any other way. An unseen Dusky Warbler may call '*tak*', but forever only stay in the notebook. That same bird call recorded might allow the distinctive 'backwards tick' shape of the call note to be demonstrated in a sonogram to a records committee. Maybe one day, a well-presented sound recording might be the difference that allows your record of a badly seen, or hard to identify rarity accepted.

Acknowledgements

Thanks to members of SBRC, particularly Chris McInerny, for reviewing this paper and making it considerably better than it was.

Mark Lewis on behalf of the
Scottish Birds Records Committee

NEWS AND NOTICES

New members

Ayrshire: Mr J. Adair & Ms M. Lewis, Mr C. Butterworth & Ms Y. Moulds, Miss J. Pearson, **Borders:** Ms C. Cadoux, Mr & Mrs C. Croft, Mr J. Landrock & Ms V. Clare, Mrs K. Prentice, Mr & Mrs N. Ryrie, Mr A. Waterson, **Caithness:** Mr & Mrs T. Hawes, **Central Scotland:** Mr S. Elder, Dr & Mrs D. Glen, Mrs L. Turnbull, Mr D. Weir, **Clyde:** Dr P. Baker, Miss A. Brown & Mr T. McGuire, Mr A. Campbell, Miss N. Fineron, Mr F. Gibbons, Mr G. Griggs, Dr & Mrs G. Lindop, Mr A. McDermott, Mr P. McGeough, Mrs D. Murray, Ms J. Peach, Mr J. Quinn, Mr J. Sweeney, Dr A. Walker, Mr J. Williams, **Dumfries:** Mrs C. Legg & family, **England, Wales & NI:** Mr P. Bateup, Mr P. Clark, Mr J. Greasley, Mr T. Worsfold, **Fife:** Mr E. Lewis, Mr P. Sharples, Mr W.A. Stark, **Highland:** Mrs O. Bere MacVarish, Ms T. Lister, Dr R. Urquhart, **Lothian:** Ms J. Argyle-Robinson, Dr J. Carter, Mr M. Dawson, Mr W. Dick, Miss J. Dyson, Ms C. Freigang, Mr C. Gonzalez Sola, Mr J. Hadfield, Mr & Mrs P. Hand, Mr & Mrs Hogan, Mr W. Howarth, Dr J. Kennedy, Mr & Mrs R. Kerr, Mrs & Mr E. Lander, Mr M. Leslie, Mr A. Matthews, Ms F. Maxwell, Dr S. McKinlay, Mrs & Mr L. Murray, Miss J. Oxley, Ms R. Palmer, Mr D. Reed, Mr D. Robertson, Mr & Mrs N. Russell, Mr L. Scott-Mackay, Ms C. Stanczyk, Ms V. Sweeney & Mr M. Campbell, Mr M. Symonds, Prof & Mrs A. Tweedie, Prof J. Wilson, **Moray:** Mr & Mrs R. Austin, Mr G. Stevenson, **North-East Scotland:** Mr M. Jordan, Dr C. Lovelock & Dr G. Whelan, Dr & Mrs B. Morley-Boyle, Mrs K. Munro, **Scotland - no branch:** Mr J. How, Mrs J. Jackson, **Stewartry:** Mr M. Smith & Ms M. Brooks, **Tayside:** Mr A. Gibson, Miss E. Langley, Mr D. Marshall, Mrs E. O'Reilly, **West Galloway:** Miss J. Smith.

Scottish Birdwatchers' Conference, 19 March 2022, Elgin Town Hall

Programme and booking details are scheduled to be included with the December issue of *Scottish Birds*.

SOC Annual Conference & AGM, 19-21 November 2021

Owing to prevailing uncertainties surrounding COVID-19, this year's conference will once again be an online-only event, via Zoom. Programme and booking information will be emailed to members and posted on the SOC website. While we will not be able to hold a formal AGM until we can meet in person, the programme will include the usual session where SOC office bearers will present the annual report and accounts and any other relevant business. To request details by post, please contact the Club Administrator on 07519 263198.

SOC Annual Report & Accounts 2020/21

The format and style of this year's report will follow last year's design, with lots of colourful, eye-catching images. It aims to provide an engaging read and a clear insight into the Club's work, activities, achievements and, of course, the challenges of the past financial year. We're sure there will be something of interest for all our members, and we hope you'll take a few moments to look through and see what your valued support has enabled us to achieve.

The 2020/21 Annual report and Accounts will be available by early November in digital format, with members notified by email. To request a printed copy of the report, please contact the office on 01875 871330.

Waterston House update

Opening Hours Thursday–Sunday 10:00 hrs–17:00 hrs. Please check the SOC website for any updates to opening hours and facilities available when planning your visit. Office staff can be reached Monday to Friday 09:00 hrs–17:00 hrs by email (mail@the-soc.org.uk) or by calling the office on 01875 871330. If calling outside of Waterston House opening hours, please leave a message, or call 07519 263198.

Access your free digital version of *Scottish Birds*!

We hope you enjoyed reading the new online 'flipbook' format of the June issue of *Scottish Birds*. We are providing members with free access to this new version, *Scottish Birds Online* (SBO), for the next few issues, with a view to offering the option of a digital-only membership from September 2022. We will be in touch with more details in due course. If we have your email

address, you should already have received an email from us with details of how to log in to your personal SBO account where you'll find your September flipbook waiting for you. If you haven't received the email and would like to access the online version, please contact Kathryn Cox (admin@the-soc.org.uk)

Art Exhibitions

'Wild Moments' 30 September–7 November. An exhibition by Adele Pound, Lorna Hamilton and Melanie Mascarenhas. All three won bursaries to attend the Seabird Drawing Course, created by John Busby to support wildlife artists. Adele, Lorna and Melanie have very different styles, but their work shares an almost cinematographic quality, giving us a sense of a captured moment in a bigger story, illustrated here by Adele's particularly distinctive approach to the subject through the medium of the graphic story.

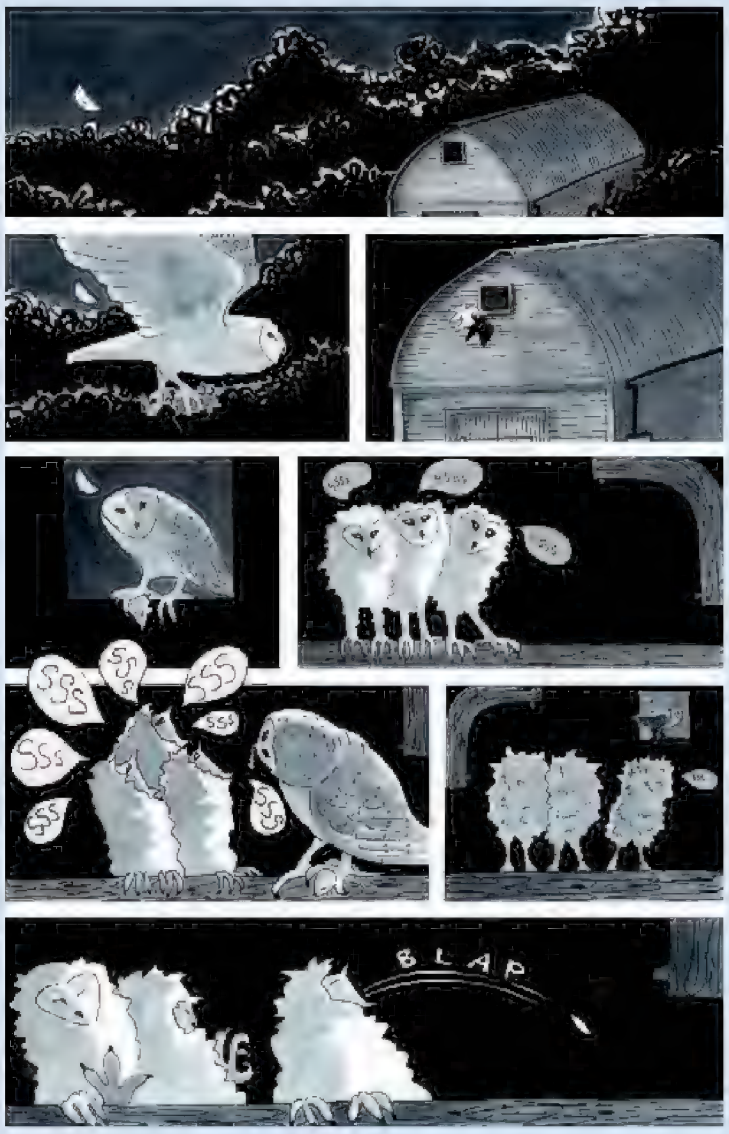

Plate 169. 'Blap.' © *Adele Pound*

Plate 170. Detail from Dipper and Celandines. © *Darren Woodhead*

'Close to Home' 11 November–9 January. Darren Woodhead's new solo show is an ode to the natural world and a reflection on the anchor it has been for him over the past months. As Darren explains: "Although the world has changed, my need to observe, document and record through watercolour has not. Even more so now, it is my escape, my sense of serenity and belonging. Many of the paintings have stemmed from observing birds in the garden or from 'one man on his bike' trips in the field. Here, I could immerse myself in the changing seasons and the parallel natural world, and feel the ultimate connection to my subject, close to home".

Plate 171. Detail from male Kingfisher and Willow. © *Darren Woodhead*

Artworks by the current exhibitors are available from: www.the-soc.org.uk/online-shop the SOC Online Art Shop.

Plate 172. Mark Lewis. © *Mark Lewis*

SOC Birding & Science Officer - Mark Lewis

We are delighted to announce the appointment of Mark Lewis to this important and exciting new full-time role within the Club, leading and developing SOC's ornithological work. In addition to being a top birder, Mark brings a wealth of experience and expertise to the role; he has worked as an offshore monitoring ornithologist with JNCC for the past nine years and has extensive involvement in local bird recording, research and surveys, and running citizen science projects. Based in Aberdeen, Mark will be working from home but can be reached via email: birdingofficer@the-soc.org.uk

New Management Committee member

SOC Management Committee welcomed Lothian SOC member Anne Sinclair to the team in April. Anne is a retired solicitor, and during retirement has worked part-time and volunteered at RSPB Loch Leven visitor centre. Anne replaces Caroline Gordon (Fife branch), who stepped down in March. Council thanks Caroline for her time and contribution to Management Committee business over these past few years.

For a list of all Council and SOC committee members, visit: www.the-soc.org.uk/about-us/staff-committees-office-bearers

Farewell to Andrew Thorpe

It is with much sadness that we said farewell to Andy as SOC Treasurer this summer, following a move from his home in East Lothian to Exeter, to be near family. Andy agreed to take on the role of SOC Treasurer back in 2016 during a chat with the Club Administrator in which he mentioned he was looking at how he could help out at HQ, having recently relocated to the area from Aberdeenshire. At the time we were looking for a Treasurer, and Andy made the mistake of letting slip he had a background in finance! During his tenure, he did an excellent job of steering the Club's finances and forged a close working relationship with staff at HQ who appreciated his good nature and hands-on approach. He will be greatly missed by all at Waterston House, his fellow office bearers, and his good friends on the Lothian Discussion Group. We wish Andy and Lesley all the very best with their new life on the south coast.

Plate 173. Andy with his farewell gift, April 2020. © *Lesley Thorpe*

New SOC Treasurer - Richard Kerr

Despite advertising the vacancy via the AGM email in November and publishing an appeal in the December issue of *Scottish Birds*, we received no notes of interest from members. The role was then advertised more widely, with the vacancy posted on the REACH website www.reachvolunteering.org.uk There it caught the eye of Richard Kerr, a recently retired Certified Accountant who worked in the financial services sector for over 30 years, latterly at board level. Following an interview with Club President and Honorary Secretary, a proposal was put to Council at the June meeting to co-opt Richard as a temporary trustee until the next face-to-face SOC AGM, when his formal appointment will be put to members to vote. Council gives a warm welcome to Richard and thanks him for his eagerness to give his time and expertise to the Club in this crucial role. Richard can be reached by email: treasurer@the-soc.org.uk

Plate 174. Richard Kerr with Amber, Tayport, Fife, May 2021. © *Amanda Kerr*

Branch Updates

New Contacts

Fair Isle, change of Local Bird Recorder: Rob Fray, Email: recorder@shetlandbirdclub.co.uk Tel: 07775647463.

Endowment Fund

The SOC Research & Surveys Committee received three applications this year. However, one was withdrawn after alternative funding was found, and one was unsuccessful since the research was deemed to replicate previous studies.

Late spring seaducks in the Moray Firth (£121)

The aim of the study was to fill knowledge gaps in how, and perhaps why, Portmahomack on the Moray Firth has become a traditional and favoured late spring site for Common Scoter and Long-tailed Duck (a winter visitor and passage migrant to the UK). Past observations and local knowledge indicated that the site could be prioritised for intensive observations of the two target species. The inshore tidal waters here contribute to the Moray Firth Special Protection Area (SPA), which is protected for its range of non-breeding marine waterbirds.

Intensive behavioural observations took place from 30 April to 7 May, with flock counts of both Long-tailed Ducks & Common Scoter from Portmahomack undertaken throughout the spring period until mid-May. The survey was led by David Patterson, currently specializing in seaducks, and waterfowl expert, Carl Mitchell, with assistance from local ornithologist, Dave Tanner. In spite of the breezy conditions, and fuelled by hot curry pies and coffee from the local café and village shop, the team managed to record impressive spring flocks of Common Scoter (> 5,000), with Long-tail Duck numbering *c.* 1,700. Equally encouraging was the level of awareness in the community, with David commenting: 'The locals were very welcoming and interested in nature, with most aware of the Long-tailed Ducks as the birds that often forage close to shore, so their melodic yodelling can easily be heard on calm days - just wonderful!'

For more information on the SOC's Endowment Fund, including how to apply (Deadline for applications is 31 January 2022), visit: www.the-soc.org.uk/bird-recording/grants

Chris Rodger - a new member of SBRC

Scottish Bird Records Committee welcomes Chris Rodger as a new member, replacing Mark Wilkinson from November 2021. Chris has been an active birder throughout Scotland for over twenty years, with spells wardening reserves in Shetland, Orkney and the Isle of Rum. His local patch is Musselburgh, where he has lived since 2013. Chris currently works throughout Scotland as a freelance ecologist and tour guide, making birding trips to Shetland and Orkney when time allows.

SBRC would like to acknowledge its gratitude to Mark Wilkinson for his work over the period of his tenure on the committee, part of which he was Chairman. Mark contributed much to SBRC, and we wish him well for the future.

Chris McInerny, on behalf of SBRC

Bird Reports

Argyll Bird Report 2020 (digital)

The latest report, published by Argyll Bird Club in March, is freely available from the ABC website: https://argyllbirdclub.org

Arran Bird Report 2020

The latest annual report, published by Arran Natural History Society (ANHS), includes information on all species seen on the island, a month by month summary of what was around in 2020, information on ringed birds, and reports on some of Arran's bird projects.

The report is priced at £7 (plus £1.70 p&p) and can be ordered direct from ANHS: arrannatural-historysociety@gmail.com. Copies can also be found on sale at a number of outlets on Arran: The Harbour Shop (Blackwaterfoot), The Book and Card Centre (Brodick), and Pirnmill Village Store: www.arranbirding.co.uk/outlets.html

Caithness Bird Report 2020 (Digital)

The latest Caithness Bird Report, published in June, is now available to download free from the SOC website: www.the-soc.org.uk/files/docs/bird-recording/Caithnessbirds2020.pdf

Dumfries & Galloway Bird Report No. 30, 2019

Published in April by the D&G Bird Report Working Group, the report contains summaries of 52,170 records of 232 species for which 285 observers are thanked. It also contains a review of the year, colour photographs, ringing report, gazetteer and map, and new for this issue, the results of a nocturnal migration study. The report costs £10 (+ £2 p&p). To order a copy, please call Peter Swan on 01556 502 144 or email pandmswan@btinternet.com first to check availability. Cheques should then be made payable to 'SOC Dumfries and Galloway Branches' and sent to Peter at: 13 Robb Place, Castle Douglas DG7 1LW. A collection service is also available by prior arrangement from Castle Douglas (Peter), New Galloway (Joan Howie, Tel: 01644 420 280), Dalbeattie (Brian Smith, Tel: 01556 620617) or Lockerbie (Drew Davidson, Tel: 01576 202591/07906 912558).

Isle of May Bird Observatory Report 2019

The 68-page printed report includes the systematic list and a few other items. It also contains the password to access the expanded digital version hosted in the members' area of the Isle of May Bird Observatory website: www.isleofmaybirdobs.org In addition to the systematic list, the digital report includes extracts from the 1969 and 2009 chatty logs, monthly summaries, a mammal report, material relating to the Observatory, and details of how to visit the island. In addition, there are over 125 pages with separate reports on insects, bird ringing, the Young Birders' Training Course, IoMBO developments, and articles and photo galleries of birds seen in 2019. The printed report costs £7.50 (including UK p&p) and can be ordered from Stuart Rivers, Flat 8 (2F2), 10 Waverley Park, Edinburgh, EH8 8EU, or by dropping Stuart an email: slr.bee-eater@blueyonder.co.uk

Council thanks all SOC volunteers and members of other bird clubs and societies who carry out the often Herculean task of producing these regional annual reports. For a full list of current reports, visit www.the-soc.org.uk/bird-recording/bird-reports-atlases Copies of the majority of Local Bird Reports are available to purchase from Waterston House (in-store purchase only).

Events for young people in Scotland

The SOC and BTO Scotland are excited to launch a new series of free monthly events for people under 30

Delivered on Zoom, attendees will enjoy a diverse programme of interactive online workshops and talks from some of Scotland's top ornithologists, naturalists and creatives. Programme contributors have kindly donated their time and expertise to helping inspire the next generation of birdwatchers, recorders and conservationists, for which we are most grateful. For more information and to book your place, visit:

www.the-soc.org.uk/soc-bto-scotland-youth-events-programme

Arctic Tern
© Darren Woodhead

27 OCTOBER 2021
19:30 hrs

Careers Workshop

| Talks | Discussion | Q & A |

Are you interested in a career related to wildlife, conservation or nature? Join us for this event to find out how to pursue your ideal job. Our panel have had successful careers in a wide variety of fields. They'll be on hand to tell you about their experiences, and give examples of the type of exciting job opportunities open to you. From chef to Birding and Science Officer at the SOC, and water bailiff to the Head of Investigations at RSPB Scotland, the panel will discuss the different pathways they've taken so far to get there. This event could be the start of your future – don't miss out!

Your panel: ***Liza Cole****, Director, In Our Nature Tour Company;* ***Mark Lewis****, Birding & Science Officer, SOC;* ***Nina O'Hanlon****, Research Ecologist, BTO Scotland;* ***Gus Routledge****, Ecologist;* ***Ian Thomson****, Head of Investigations, RSPB Scotland.*

24 NOVEMBER 2021
19:30 hrs

The Gannet

| Talks | Q & A |

The Gannet is one of our most iconic seabirds, with over half the world's population breeding in Scotland. At this event, Marine Engagement Officer, Charlotte Foster, will introduce us to the bird itself - its identification and lifestyle. St Abb's Head National Nature Reserve Ranger Ciaran Hatsell will also tell us the intriguing story of the first ever Gannet chicks to fledge from the reserve - a result of 'overspill' from the crowded Bass Rock. You'll hear from Maggie Sheddan, Bass Rock Guide and Caretaker for almost 20 years, plus Jude Lane from the University of Leeds who tracks gannets using bio-loggers to reveal details about adult foraging behaviour and juvenile dispersal. A truly terrific line-up celebrating one of our most magnificent species!

Your panel: ***Charlotte Foster****, Marine Engagement Officer, Scottish Seabird Centre;* ***Ciaran Hatsell****, Ranger, St Abb's Head National Nature Reserve;* ***Jude Lane****, Postdoctoral Researcher, University of Leeds;* ***Maggie Sheddan****, Bass Rock Caretaker and Guide.*

15 DECEMBER 2021
19:30 hrs

Seabird Identification

| Interactive workshop |

Are you perplexed by petrels, stumped by shearwaters, or discombobulated by divers? You're not alone – seabirds can be difficult to identify. During this interactive workshop with the SOC's Birding and Science Officer Mark Lewis, you'll learn why this is and develop a methodical approach to identifying seabirds, using examples of your own identification challenges. For those keen to continue to develop their seabird knowledge, we'll also take a look at opportunities for getting involved in current UK seabird monitoring projects.

26 JANUARY 2022
19:30 hrs

Capturing the spirit of birds

| Talks | Discussion | Q & A |

Watercolour, photography, film and song - Nature inspires artists to create magnificent works in all these media. At this event, you'll hear from three acclaimed creatives – wildlife artist Darren Woodhead, singer-songwriter Jenny Sturgeon and photographer and filmmaker Fergus Gill – about how birds and the natural world feature in their work. They'll take you on a fascinating journey through what inspires them, their career and history with birds and nature, and how they bring them to life, whether through the lens, on paper or the written word.

23 FEBRUARY 2022
19:30 hrs

Writing about nature

| Talks | Discussion | Q & A |

With a truly exciting and acclaimed panel, our writing about nature workshop is a can't-miss event for any aspiring young writers. Join award-winning 17-year-old author Dara McAnulty, acclaimed wildlife storyteller Lucy McRobert and BTO Media Manager Paul Stancliffe to hone your writing skills so you can create excellent and engaging pieces of work about nature. Our panel will also talk you through how to pursue a career in the field, how they got into it, and offer their top tips and advice.

Your panel: ****Dara McAnulty****, Naturalist, Writer & Environmental Campaigner;* ***Lucy McRobert****, Communications & Marketing Consultant. Storyteller, Nature Author & Environmental Journalist. Columnist, Birdwatch. Birder & Naturalist;* ***Paul Stancliffe****, Media Manager, BTO. *Attendance to be confirmed*

30 MARCH 2022
19:30 hrs

Bird songs and calls

| Interactive workshop |

This engaging and interactive event will help you to learn some of the more common bird songs and calls. It will be a great introduction to the topic and will provide a framework on which to further develop your skills. Led by BTO Scotland's Development and Engagement Officer Steve Willis and Manager of Development and Engagement Ben Darvill, the workshop is guaranteed to be memorable. You'll be entertained and improve your knowledge in equal measure!

OBITUARIES

W.R.P. Bourne (1930–2021)

William Richmond Postle Bourne was born in Bedford, the eldest of four children. The family moved to Exmouth, then to Hove in Sussex. From 1940 they spent time in Bermuda where Bill went to secondary school, spending time birdwatching, sailing and fishing. The family returned to Hove in 1944 and Bill attended Brighton College, where he helped start a natural history society.

At Cambridge in the early 1950s, he was involved in the resurgence of the Cambridge Bird Club. Bill was one of the architects of an exploration phase involving studies of the fens and washes, and also of the club's interest in visible migration. He became involved in a major project on Skylark migration. At Cambridge he read medicine and zoology, then finished his medical training at St Bartholomew's Hospital. Conscripted on completing his studies, he was declared unfit for service overseas, but managed to get this decision reversed and was sent to the Middle East. There he spent time watching lark migration, and noted the ecological significance of Azraq in Jordan before being transferred to Cyprus, where he became the co-founder and first recorder of the Cyprus Ornithological Society.

In Cyprus, he discovered that migrating birds could be seen by radar and on his return to the UK was invited by Dr David Lack to be 'a pair of eyes on the east coast' as part of a co-ordinated programme of the study of migration by radar. Although Oxford rejected his thesis on migration when he declined to write up the results in an acceptable form, it did provide him with Sheila, an English teacher there whom he wed after a prolonged courtship. They married in 1962, and in 1963 their daughter Mary was born.

Between 1963 and 1970 Bill was a house officer at Watford General Hospital, during which time he continued to travel the world studying seabirds. He was appointed secretary of the committee for seabird research at the International Ornithological Congress in Oxford in 1966 and served 12 years in that position. In 1961 he proposed the formation of the Seabird Group for which he was also secretary for 12 years and which in 1969 made the first census of breeding seabirds in Britain, Operation Seafarer. He was a member of committees that successfully campaigned against the use of Aldabra in the Indian Ocean as a military base, and Foulness in Essex as a third London airport. For 25 years, he served on the British section of the International Council for Bird Preservation. In 1970, he became a research fellow in the zoology department of Aberdeen University, employed on a Natural Environment Research Council grant for five years to carry out studies of the distribution and ecology of birds at sea. From 1983 until 1991 he was a ship's surgeon with the Royal Fleet Auxiliary, where his tours of duty included several trips to the South Atlantic Islands and the Persian Gulf during the first Gulf War.

Plate 175. Bill Bourne, near Gairloch, 2002. © *Sheila Bourne*

Islands were one of his main interests, and his knowledge of them and their birds was encyclopaedic. He was an expert in the taxonomy of petrels. He had an unusually wide circle of friends and acquaintances, for example through the Royal Naval Bird Watching Society. In 1951, he travelled alone to the Cape Verde islands where he discovered a sub-species of Purple Heron, Bourne's Heron (*Ardea purpurea bournei*). Bill was one of the founders of the Pacific Seabird Group, which presented him with a lifetime achievement award in 1997, while the International Seabird Group presented him with a similar award in 2014. In 1994 he received the Stamford Raffles Award from the Zoological Society of London for his contribution to the study of seabirds.

Bill was in Aberdeen during the development of the North Sea oil-fields. Their potential effects on birds, especially seabirds, was clear to all, and Bill was an indefatigable opponent of proposals which might endanger valuable natural assets. Anxious to demonstrate his independence, he instantly changed the monogram on an anorak provided for him during a visit to BP's offshore installations to BB: Bill Bourne, not *British Birds*. His views were freely given in letters to the local and national press, in television and radio interviews, and in critical commentaries in editorials and correspondence columns of journals. People tended to love or to hate Bill. His very real qualities of compassion and generosity were often hard to find, but they were always there. His friends knew that if they were in trouble, Bill would do all he could to help. Among these many near-lifelong friends he included David Jenkins who invited Bill to be his best man at his Edinburgh wedding. Bill performed his duties admirably including arranging accommodation for the night before the wedding. He booked the groom into a hotel near Princes Street which to his great concern turned out to have no licence for alcohol. The situation was saved by George Dunnet who turned up bearing clothes from Moss Bros but also an appropriate bottle!

Bill Bourne was an enigma, a classic stormy petrel, but an original and commanding character in an era when it is fashionable to conform.

Compiled by David Jenkins with information from Bill's family and friends

Euan D. Cameron (1933–2021)

Euan was born in Singapore and spent his early life in St Andrews before attending Trinity College, Glenalmond. After National Service in the Cameron Highlanders, he attended Glasgow University where he read Agriculture, but switched to a general degree and then trained as a primary teacher. Euan taught at Comrie Primary School in Perthshire before returning to Jordanhill to qualify for teaching Special Education. He spent the rest of his career at the Glebe School in Scone, where a succession of children benefited from his skills, support, and patience.

We first met in 1971 when we were both members of the Ornithological Section of the Perthshire Society of Natural Science (PSNS), a society he remained a member of all his life. I was Bird Recorder for Perth and Kinross in the late 1970s, and at that time Euan produced a monthly bulletin of bird reports which was invaluable in the days before web-based systems. He was a conscientious observer who took meticulous notes, and was extremely well organised, qualities which remained throughout his life. When I had to give up the Recorder role, I persuaded Euan to take it on. Typically, he felt uncomfortable in the lead role, always happier to be in the background as a willing supporter. However, he approached the task with customary good humour and efficiency, and remained in the post for seven years until 1988. He remained a willing supporter of local recording and served for many years on the Perth and Kinross Records Committee.

In the 1970s Euan joined me on ringing trips, including the first organised sessions at the

huge hirundine roosts in the Tay reed beds. This became an annual adventure for him for many years. Initially Euan was a helper, and then qualified as a ringer. The first annual Scottish Ringers Conference was held in Perth in 1975, and Euan was a willing aide; he went on to attend and help at many more conferences. He served on the committee of the Tay Ringing Group for many years, including a spell as Secretary, and kept many of the records. He was always a keen volunteer in group sessions for ducks, waders, goose and swan roundups. Such sessions can occasionally present personality challenges, but Euan was always able to resolve issues through a formidable combination of charm and polite authority. As well as ringing raptors, and garden ringing, Euan operated his own Tree Sparrow nestbox scheme for 20 years. In a birding sense he was very much a generalist, with a broad knowledge base which he willingly shared.

Plate 176. Euan Cameron, Tay Reed Beds, circa 1979. © *Bradly Yule*

Although there was no local branch, Euan was a long-term member of the SOC, supporting the Tayside Branch. He became involved in raptor monitoring work, joining the Central Scotland RSG at its first meeting in 1983, prior to the Tayside RSG being formed in 1991. He took on the role of minute secretary for ten years. Euan monitored a raft of species in Perthshire including Raven, Golden Eagle, Merlin, Peregrine and Hen Harrier. A lasting memory for me was visiting a harrier site with Euan on Atholl Estate, an experience which inspired me to start my own study on Skye. In appearance and manner, Euan changed very little over the years. Even in later life he was never out of breath and always had the annoying ability to look impeccable.

Euan had a long-term involvement with Riding for the Disabled at Blairgowrie. He was also a volunteer at Upper Springlands in Perth, which enables people with a range of disabilities to lead their lives to the full. One of his favourite local spots had been the Annaty Burn and Quarrymill near Scone, where he was involved in voluntary work such as leading nature walks. He was delighted that the area became the Quarrymill Woodland Park, where generations of local children and young people could explore and encounter wildlife. Never one to travel, he remained happy living in Scone and enjoying the Perthshire countryside. Euan suffered mobility problems due to cancer, and in 2018 moved to Catmoor House in Scone where he was made very comfortable. At this time, his collection of bird books was auctioned, raising money which, typically, was donated to the BTO for an ongoing satellite study of Short-eared Owls. His final year would be endured with patience, fortitude and good humour, without regular visits from family and friends due to Covid 19 restrictions.

Euan is survived by his brother Lachlan, his nieces Sarah and Christian, and nephew David, to whom we extend our condolences. One of nature's gentlemen, he will be missed by his many friends in the birding world and remembered for his significant contribution to ornithology in Perthshire and wider Tayside. He will also be remembered for his selfless commitment to improving the lives of those less fortunate than himself.

Bob McMillan with family and friends

King of Kingfishers

Although I'm not a great ornithologist, birder, or twitcher, I love photographing and watching birds. Jimmy Maxwell previously published a couple of my short observational pieces in *Scottish Birds*, and his passing finally spurred me into joining the SOC this year. He will be an incredible loss in Lanarkshire.

At the start of April 2021, I observed an extraordinary event. It had just been raining on the Clyde, the light was dying, and I was about one mile downstream from a Kingfisher's nest, and *c.* 1.5 miles upstream from another nest. I had been watching the first Sand Martin arrivals when a beautiful blue flash flew past low on the river. It passed as Kingfishers often do, but this bird then arched back on itself and immediately landed on the opposite bank where another male Kingfisher was already perched. Although Kingfishers are known to be aggressively territorial, particularly early in the season when they fight frequently, I was about to witness an astonishing struggle between two rivals.

The first surprise was that it started as a land battle. The birds fell and rolled down the bank, with the attacker trying to force its opponent into the river. The victim's wings were spread almost to breaking point to create leverage and prevent the steep descent into the water. However, the aggressor grabbed its target by the neck, and at one point it appeared almost lifeless. Pinned by the throat, it was finally forced into the water. What came next lasted over three minutes. Both birds used their beaks to bear down on the opponent's head or wings. Each fastened its beak onto that of the other to clamp it shut, and I lost sight of which was the victim and which the assailant. Seemingly trying to drown one another, they wrestled exhausted, one trying to fly out of the water and the other pulling it back by the tail. Then the clash gained pace. The tempo was furious as the birds stabbed at each other's eyes, intent on inflicting serious injury. If one escaped the other's grip and managed to get airborne, it would come down in a Stuka-like dive, with its open beak almost engulfing the other's head. The birds became a blur in their frenzied airborne dogfight.

It ended when the bird that was attacked managed to see off its rival. At that point I noticed his female joining him. She had been perched on the bank, hidden, but watching the fight. I realised that this pair was often seen downstream from the battleground. For around a week I caught sight of the female on her own with the male nowhere to be seen. I then spotted him recuperating in a tree set well back from the river. The good news in late May was that he was on the river feeding his fledglings.

Plate 177. Kingfishers dispute, Clyde, 19 April 2021.
© *Frank Gibbons*

Frank Gibbons
Email: Frank76G@outlook.com

Plate 178. Male Goosander in high-speed chase, River Esk, Musselburgh, Lothian, 3 April 2021. © *Ian Andrews*

Goosanders and Brown Trout

On 3rd April 2021, my almost daily walk from the 'Electric Bridge' in Musselburgh began with a sighting of four Goosanders downstream towards the sea. They were actively chasing something and judging by the torpedo-like speed of one of them (Plate 178), it was something worth chasing. I'd never seen such a high-speed, half-submerged pursuit before. I walked further and again a bullet-speed chase caught my eye. Almost immediately, there was a huge commotion of chasing, splashing birds. I dashed off some photographs to capture the ruckus. It was all over in a couple of seconds and it was only when reviewing the photos that I realised that they had been arguing over a sizeable Brown Trout (Plate 179). From the photos, I would estimate that this Trout was in excess of 30 cm long. One of the females was just about managing to hold onto it and the male was lunging to try and steal it. Almost immediately, they all dived and judging by how soon they all resumed fishing, I assume that the Trout was 'the one that got away'.

From the literature, most Trout taken by Goosanders are relatively small (average 11 cm), but fish up to 34 cm long have been recorded being eaten by Goosanders.

Ian J. Andrews, Musselburgh, East Lothian.
Email: ijandrews@live.com

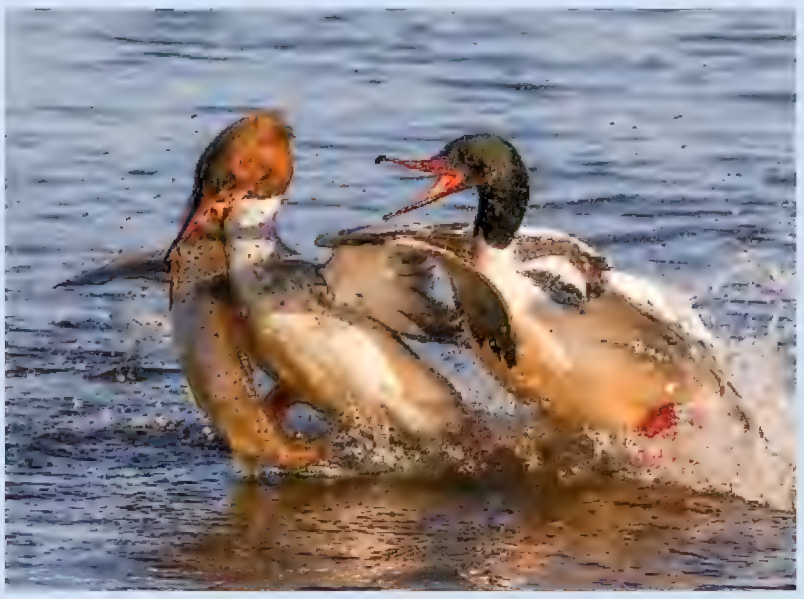

Plate 179. Goosanders arguing over a large Brown Trout, River Esk, Musselburgh, Lothian, 3 April 2021. © *Ian Andrews*

LETTERS

Mallard x Pintail hybrids

Alistair Cutter's recent note describing a Mallard x Pintail hybrid on the River Tweed (*SB* 41:2, 156) reminded me of an identical bird recorded during a WeBS count at Tayport, Fife on 13 January 2002. At high tide in the early afternoon, I found a drake feeding with a scattered flock of 93 Mallard and 174 Wigeon by the Tayport saltmarsh. My description taken at the time is identical to that of the River Tweed bird, with an added note that the legs were yellowish when the bird upended.

The provenance of the Tayport bird was not considered at the time. Given that Pintail are very scarce breeders in the UK, it would seem more likely that hybridisation occurs in the core Pintail breeding areas of Fennoscandia and northern Russia, whence many of our wintering birds originate. A cursory search of the internet revealed a number of such instances, both in Europe and North America.

Norman Elkins, Cupar, Fife KY15 5DX.
Email: jandnelkins@btinternet.com

Yellow-bellied Flycatcher on Tiree

I write in connection with the article by Mr J. Bowler on the sighting of the Yellow-bellied Flycatcher on Tiree in September 2020 (*SB* 41: 1, 78–80). Mr Bowler is to be complimented on the initial decision to keep quiet about this exceptional rarity. This was "in the light of the worsening Covid-19 situation on the mainland and the absence at the time of the disease on the island, which has a large and vulnerable elderly population'. He goes on: 'In the end, despite deciding not to put the news out, the sightings information somehow found its own way out and we were faced with a potentially large twitch the following day".

I think these words and their implications for the vulnerable elderly of the island speak for themselves. Over a period of days 120 twitchers initially turned up. Then, even after the alarm had been raised and concerns expressed by islanders, there was a "continuing influx of birders from all over Britain". The priorities of these twitchers to add that bird to their life-list, weighed against the immediate threat of this deadly disease, beggars belief.

Clearly, it was by sheer good luck that this influx did not have large-scale and lethal effects. However, I suggest that *Scottish Birds*, the SOC itself, and other birding organisations all use their good offices to warn and persuade birders like these to think before they flood into vulnerable areas like this island.

Sandy Mitchell, 5 Seaton Cottage, The Dock, Avoch, Inverness-shire IV9 8QE.

Plate 180. Yellow-bellied Flycatcher, Balephuil, Tiree, Argyll, 17 September 2020. © *Chris Griffin*

BOOK REVIEWS

The book reviews published in *Scottish Birds* reflect the views of the named reviewers and not those of the SOC. Compiled by Nick Picozzi.

Helm Field Guides: Birds of Chile. Daniel E. Martinez Piña & Gonzalo E. González Cifuentes, 2021. Helm, London, ISBN: 978-1-4729-7000-8, paperback, 224 pages, 88 plates with colour illustrations and distribution maps, £29.99.

This book gives excellent coverage of the birds of mainland and insular Chile, its Antarctic territory and its surrounding seas. This coastal country stretches some 2,700 miles from the middle of the South American west coast down to its southern tip, yet is only on average 110 miles wide. However, that narrow stretch includes everything from coastal plain to the high Andes. It is perhaps not surprising, therefore, that this slim handbook describes a total of 468 bird species.

The book comprises plates and short texts about each species, organised not in taxonomic order but in three categories, namely seabirds, waterfowl, and land birds. Although unusual, this seems to work well for the unique geography of the country. Two criteria have been adopted for each plate: to gather together species which can be confused with one another, such as the large albatrosses and giant petrels, or to compare species which share a geographical area and are therefore very likely to be seen together, such as petrels and shearwaters.

The plates are generally excellent, albeit somewhat crowded in order to meet these criteria. Some of the identification descriptions are also a little brief. The authors have tried to be extremely helpful by often telling the reader in some detail where to find species. This is often accomplished using a rather small font for a huge amount of detail. I would expect that most visitors to Chile are on an organised tour with a leader who knows the country and its birds, rather than trying to find individual places in small print on a small map!

I have one final comment: it was many years ago that I visited Chile, a wonderful tour when one saw so many species from penguins to Andean Condors, and I am surprised that neither the publisher nor the authors, for unexplained reasons, acknowledge the 2003 edition of the Helm Field Guide which concentrated more on species identification and less on where to find the species.

Mike Betts

Henry Seebohm's Ornithology: his collecting, field observations, publications and evolutionary theories. Tim Milsom. 2020. Privately printed, limited edition. £40, Wildside Books, Eastbourne. Paperback, 357 pp, 16 colour plates, many black & white images.

This is an enthralling and wonderfully comprehensive work covering the life of Henry Seebohm (1832–1895), a wealthy Sheffield steel manufacturer and one of Britain's leading ornithologists. The book is presented in two main sections: The Collecting Life and A Maverick in Ornithology. Each section is divided into chapters dealing with various aspects of Seebohm's activities. The text is enriched throughout by the extensive use of quotes from letters to and from his contemporaries, mainly from archives in the libraries at Cambridge University and the National Museums Scotland (Edinburgh). I found one of the shorter chapters of particular interest: today we accept trinomial scientific names, but it is fascinating to read in detail here about the prolonged and often heated debate between Seebohm (an advocate) and those who held contrary views.

There are six appendices: two give details of two of Seebohm's trips; two list his publications, and two list the bird species and subspecies named after, and by, him with these supplemented by informative taxonomic notes by the author.

The book has 30 pages of notes and references on the chapters, full references, and three indices.

This is a wholly impressive work, and as it is a limited edition it will certainly become a collector's item. A final thought: the use of original letters etc. gives us a unique insight to the views and personalities of Seebohm and his contemporaries. One is left wondering what the current generations might leave behind to be archived when our digital trace is all but erased.

Bob McGowan

Britain's Habitats - A field guide to the wildlife habitats of Great Britain and Ireland. Second edition. Sophie Lake, Durwyn Liley, Robert Still and Andy Swash, 2020. Princeton University Press, Woodstock. ISBN 978-0-691-20359-1, flexibound, 416 pages. £25.

Until recently, learning how to describe habitats was somewhat complex as the publications on offer were often more in-depth than the average person may want. *Britain's Habitats* fills this literary gap very effectively. It does a stellar job of covering Britain's rich and varied landscape, summarising each habitat effectively with its own entry and offering all the necessary information anyone could need to identify or find all the habitats present in Britain, whether widespread or scarce.

Beyond the introductory definitions and details which, as with other WILDGuides publications, are concisely and effectively explained, this is a well-organised overview of what could be an overwhelming number of habitats were it not for the easy-to-use layout of the field guide. Each habitat is given its own entry summarising key features for recognition. Special species are highlighted, together with sections on origins, management, cultural and conservation importance. All this is complemented by a vast range of high-quality photographs of sites and species to give the reader a proper insight and a helpful visual key.

Whether you are seeking to better understand the landscape you see on your walks or are trying to get the hang of habitats for professional purposes, you couldn't do much better than this book. No other habitat guide so effectively covers so much whilst remaining straightforward enough for anyone to engage with.

Gus Routledge

New Books also received in the George Waterston Library

The Eternal Season: Ghosts of summers past, present and future. Stephen Rutt, 2021. Elliott & Thompson, London, ISBN: 978-1-78396-573-1, hardback, 256 pages, £14.99.

The Glitter in the Green: In Search of Hummingbirds. Jon Dunn, 2021. Bloomsbury, London, ISBN: 978-1-5266-1307-3, hardback, 320 pages, £20.00.

Human, Nature: A Naturalist's Thoughts on Wildlife and Wild Places. Ian Carter, 2021. Pelagic Publishing, Exeter, ISBN: 978-1-78427-257-9, hardback, 210 pages, £16.00

Ecology & Natural History. David Wilkinson, 2021. New Naturalist/William Collins, London, ISBN: 978-0-00-829363-5, hardback, 384 pages, £65.00.

The George Waterston Library is open for browsing and borrowing during Waterston House opening hours (check SOC website). Books can either be borrowed directly or can be posted out (UK only, conditions and p&p charges apply) by emailing the Librarian (Library@the-soc.org.uk).

RINGERS' ROUNDUP

Thank you to the many ringers, ringing groups, birders and the British Trust for Ornithology (BTO) who provided the information for this roundup. Thanks also to the many birdwatchers who take the time and trouble to read rings in the field, or find dead ringed birds, and report them. For more exciting facts, figures, numbers and movements: http://www.bto.org/volunteer-surveys/ringing/publications/online-ringing-reports

If you have any interesting ringing recoveries, articles, stories, project updates or requests for information which you would like to be included in the next issue, please email Raymond Duncan: rduncan393@outlook.com

'Tarffie' and other Common Gulls

ET47509	Chk	–/05/97	Loch Tarff, Highland
	Sghtd	05/08/20	Sligo Harbour, Eire 440 km SW

Micheal Casey and friends look forward to the arrival back in Sligo Harbour of Common Gull ET47509, nicknamed 'Tarffie', in the first week of August every year... since its first sighting 23 years ago! "It will be 24 next year, still a decade short of the EURING longevity record - it will be a race between us and 'Tarffie' to see who goes first! There are a few fans who watch out for it each year now, the ring on the left making it easy to spot even at a distance"

EZ05596	Ad	02/07/15	Westhill, N-E Scotland
	Sghtd	11/10/17	Kinnaber, Tayside 45 km S
	Sghtd	08/11/19	Nevern Estuary, Newport, Pembrokeshire 549 km SW
	Sghtd	26/06/21	Westhill, N-E Scotland
EY94170	Chk	28/06/14	Tillypronie, N-E Scotland
	Sghtd	28/07/15	Isle of Arran
	also	14/02/21	Isle of Arran 238 km SW
EZ29254	Chk	25/06/16	Tillypronie, N-E Scotland
	Sghtd	27/08/17	Seton Burn, Lothian (also 11 other sightings up to 06/03/21) 132 km S
EZ29400	Chk	25/06/16	Tillypronie, N-E Scotland
	Sghtd	19/07/18	Gormanston, Co. Meath, Ireland (also five other sightings up to 30/07/20) 543 km SW
EZ78615	Ad	26/08/17	Ythan Estuary, N-E Scotland
	Sghtd	14/05/18	Prestvannet, Tromso, Norway (also 16/06/19 & 16/05/20) 920 km NE
EZ29677	Ad	26/08/17	Ythan Estuary, N-E Scotland
	Sghtd	22/06/20	Faeroya, Nordland, Norway 916 km NE

While many of our young and breeding adult Common Gulls depart south and west for the winter our wintering population is swollen by a large number of birds from Scandinavia.

Little Tern

NV64168	Chk	14/07/08	Montrose
	Rtpd	16/05/17	Inner Farne (yellow UNC added)
	Sghtd	07/05/20	Ythan Estuary, N-E Scotland
NW32662	Ad	10/06/17	Crimdon Beach, nr Hartlepool, Cleveland (blue DX added)
	Sghtd	08/06/20	Ythan Estuary, N-E Scotland

Great stuff by Ron MacDonald capturing two ringed Little Terns on camera on the Ythan. Dates suggest both birds may have been breeding in the Forvie colony. If so, it is very interesting that they have potentially shifted breeding colonies. Little Terns are notoriously fickle breeders, often failing due to bad weather, flooding of nesting areas at high tides or predation. The fate of the breeding Little Terns at the Forvie colony in 2020 bears this out when 25 pairs failed completely, attributed mainly to a rogue Oystercatcher eating all the clutches of eggs! Well that's the thanks the

Plate 181. Little Tern (Blue DX), Ythan Estuary, North-East Scotland, 8 June 2020. © *Ron MacDonald*

Forvie team get for all their efforts to protect the colony. Fortunately, they are long lived (as demonstrated by UNC at 12 years old) and possibly not necessarily faithful to the same breeding colony each year giving them time and flexibility to overcome such problems and raise chicks sometime, somewhere during their lives!

Tayside Ringing Group Peregrine Study

The Peregrine falcon has been the subject of long term population monitoring in Tayside for decades, in coordination with Scottish Raptor Study Groups. Recently an opportunity arose to help George Smith *et al.* to expand the cohort (and geographical catchment) to include Angus, Perthshire and Fife in his long term PIT tag and ringing study for this species. The PIT tag study will help provide data on Peregrine site fidelity, dispersal and longevity. This is especially relevant in upland areas where unfortunately Peregrine numbers have declined significantly relatively recently (after a robust recovery following DDT/ pesticide population crash 1940s to 1970s). The PIT tag technology enables falcons' rings to be read whilst they are on the nest and, in combination with BTO ring for traditional retrap ringing data recovery, this maximises the chance of recording previously tagged individuals. Smith *et al.* have written several papers on their study and findings, which have highlighted population trends and potential factors in Peregrine decline in specific areas.

In Tayside, between 2014 to 2018, we ringed over 40 Peregrine falcon chicks in Angus, Perthshire and Fife using BTO metal rings and PIT tags as part of the wider study area. Whilst it is still early days, and we are waiting for ringing records of breeding birds tagged later in this study, we have already had several notable returns on our tagged Peregrines. One particular return recorded a dispersal of more than 500 km from the natal site on the Angus coast. Only weeks after the juvenile had fledged it was recorded alive in Kettering, Northamptonshire, at a distance of 550 km. Other returns have included two deceased juveniles: one of unknown causes (three weeks after fledging in 2016) at an urban site in Fife, and one as a road traffic casualty (three months after fledging) at the A90 near Laurencekirk. Finally, the best news so far, a female bird tagged in the nest as a chick in 2014 in Tayside was recorded by PIT tag receiver as a breeding adult in the Scottish borders in 2018 (Smith *et al.*). This ringing and monitoring project will hopefully continue this year, after a brief interlude. Fingers crossed for more exciting data to come in the near future.

Dan Spinks

Dunlin

BT39229	AdM	07/05/13	Cuinabunag, Outer Hebrides
	Rtpd	05/05/19	Vasa Sacos, Santarem, Portugal 2,072 km S
BT73029	AdF	08/05/17	Ardivachar, Outer Hebrides
	Rtpd	05/05/19	Vasa Sacos, Santarem, Portugal 2,066 km S
T049197	Juv	08/09/19	Arnosa, Pontavedra, Spain
	Sghtd	09/05/21	Traigh Beach, Highland 1,625 km N
T078193	Juv	11/09/20	Arnosa, Pontavedra, Spain
	Sghtd	11/05/21	Ythan Estuary, N-E Scotland 1,722 km N

This bird was reported on the Island of El Hierro in the Canaries off NW Africa during October and November 2020 and again in March 2021.

May is a big passage time for Dunlin passing through Scotland on their way back from wintering areas to their northern breeding grounds. Interestingly, two birds ringed four years apart in May in the Western Isles were retrapped together on 5 May 2019 in Portugal.

Norwegian Stonechat

EK66493	AdM	31/03/21	Hommesletta, Lindesnes, Vest-Agder, Norway
	Sghtd	29/06/21	Glaspits Burn, Forest of Birse, N-E Scotland 607 km W

What a brilliant find by Alastair Pout in the Forest of Birse, North-East Scotland. This ringed male Stonechat had a yellow darvic ring on the right leg with black inscription UEE which he managed to read from the photographs he took. It was feeding fledged young. This is the first ever Norwegian ringed Stonechat to be recorded in the UK! Only one BTO ringed Stonechat has been recorded in Norway. Project organiser Kjell Mork Soot remarked "There was a great influx of Stonechats this spring in Norway."

This is only the fourth foreign ringed Stonechat to be recorded in the UK. The previous three were ringed in Spain (two) and the Netherlands.

Chiffchaff and Willow Warbler

What interesting wee warblers the Chiffchaff and Willow Warbler are. The Chiffchaff is very much on the increase continuing to spread northwards through Scotland as a breeding species whilst its close relative the Willow Warbler shows a decline in breeding numbers, particularly in England.

In a 'Ringers' Roundup' (*Scottish Birds* 36(3)) a summary of Scottish Chiffchaff movements showed how their expansion northwards has resulted in these 'northern' birds taking longer to leave the UK, their southwards migration through the country in autumn running well into October (and beyond, and wintering?). *The Migration Atlas*, published by the BTO in 2002, describes how most of the UK's Chiffchaffs (mostly based on English ringed birds back then) have reached the Mediterranean by October.

Chiffchaff

KLN010	Chick	29/06/20	Middlemuir Croft, N-E Scotland
	Rtpd	20/09/20	Powgavie, Perth & Kinross 114 km SW
LPR941	Juv	25/08/20	Carse of Ardersier, nr Nairn
	Rtpd	16/10/20	Slapton Ley, Devon 812 km S

Willow Warbler

LPR926	Juv	24/08/20	Carse of Ardersier, nr Nairn
	Rtpd	31/08/20	Filey Brigg Country Park, N. Yorkshire 440 km S
BLD868	Juv	05/08/20	Rowansgarth, N-E Scotland
	Rtpd	27/08/20	Wraysbury Gravel Pits, Windsor & Maidenhead 682 km S

The two juvenile Chiffchaff movements KLN010 and LPR941 make an interesting comparison with the two juvenile Willow Warblers LPR926 and BLD868. Chiffchaff KLN010, ringed as a chick in June, was still dawdling around in Scotland 114 km from its place of birth in the second half of September over two months after fledging, while juvenile LPR941 ringed in late August, was on the south coast in mid-October nearly two months after ringing. In contrast, the two juvenile Willow Warblers ringed in North-East Scotland in August were 440 km south seven days after ringing (LPR926) and 682 km south 22 days after ringing (BLD868), both before the end of August. Our dawdling Scottish Chiffchaffs are also joined by birds passing through from Scandinavia and over-wintering further south in the UK.

LT1388	Unk	28/09/20	Utsira, Rogaland, Norway
	Rtpd	05/10/20	North Ronaldsay, Orkney 414 km SW
NDX743	Juv	08/10/20	Carse of Ardersier, nr Nairn
	Rtpd	29/11/20	Stanley Downton, Gloucestershire 660 km S

And wintering further north in Europe...

JPR229	Chk	03/06/17	Saltoun Forest, Lothian
	Rtpd	06/12/17	Motril, Granada, Spain 2,129 km S
RT2007	Unk	15/02/20	Campo de Golf el Plantio, Alicante, Spain
	Rtpd	08/04/20	Newburgh, N-E Scotland 2,116 km N

'Northern' Linnets

Z722984	Chk	14/06/16	Scousburgh, Shetland
	Rtpd	24/10/16	Pilling Marsh, Lancashire 676 km S
S348682	JuvF	02/12/16	Pilling Marsh, Lancashire
	Rtpd	27/04/18	Clachtoll, Lochinver, Highland 498 km NNW
AYD5167	JuvM	08/09/18	North Ronaldsay, Orkney
	Rtpd	24/12/18	Pilling Marsh, Lancashire 605 km S
ADT2492	JuvM	04/12/18	Frodsham Marsh, Cheshire
	Rtpd	17/04/19	North Ronaldsay, Orkney 675 km N
AJD6518	JuvM	26/11/18	Pilling Marsh, Lancashire
	Rtpd	07/05/19	North Ronaldsay, Orkney (also 28/06/19 & 08/05/20) 605 km N
AFN3032	AdM	12/08/20	Scousburgh, Shetland
	Rtpd	28/12/20	Blackhill Farm, Collieston, N-E Scotland 315 km S
AKN9023	JuvF	09/08/20	North Ronaldsay, Orkney
	Rtpd	04/04/21	Blackhill Farm, Collieston, N-E Scotland 226 km S
ACL3321	JuvM	11/02/21	Kinnudie, Auldearn, Highland
	Rtpd	28/04/21	Clachtoll, Lochinver, Hghland 113 km NW

An interesting series of ringing movements for a species which has recently expanded its breeding range northwards into the Northern Isles and continues to increase. Four involve a peculiar NW England wintering area.

Is this another species like the Chiffchaff evolving different migration timings/traits and wintering areas as it expands northwards?

It is a summer visitor to North Ronaldsay. It was the most ringed bird on the island in 2019.

"Linnet ringing totals continued to rise reaching a record 628 ringed in 2019" (*North Ronaldsay BO Bird Report* 2019).

Twite - winter & summer visitor

You might be lucky to come across a flock of this bonny wee finch somewhere in Scotland. Depending where you live it might be on an exposed dune system or beach on the coast in winter or in the heathery hills and moors and machair of the Highlands and Islands in summer. Jonathan Jones in Portree on Skye looks forward to them arriving in spring as a summer visitor after leaving to go elsewhere for the winter. With various studies being carried out to investigate the decline of this species, ringing at Portree in spring has revealed just how wide the wintering range of this western isles breeding population is. In spring 2020 and 2021 Jonathan has caught 120 different Twite, 12 of which have been ringed elsewhere in their wintering areas. The map shows the diverse range of locations of these birds with six from North-East Scotland, (five from Montrose and one from Aberdeenshire), two from NE England at Teesmouth, one from NW England in Cumbria, one from Central England in Derbyshire, one from Ceredigion in Wales and one at the Oa on the Isle of Islay in Western Scotland. A remarkable winter scattering really.

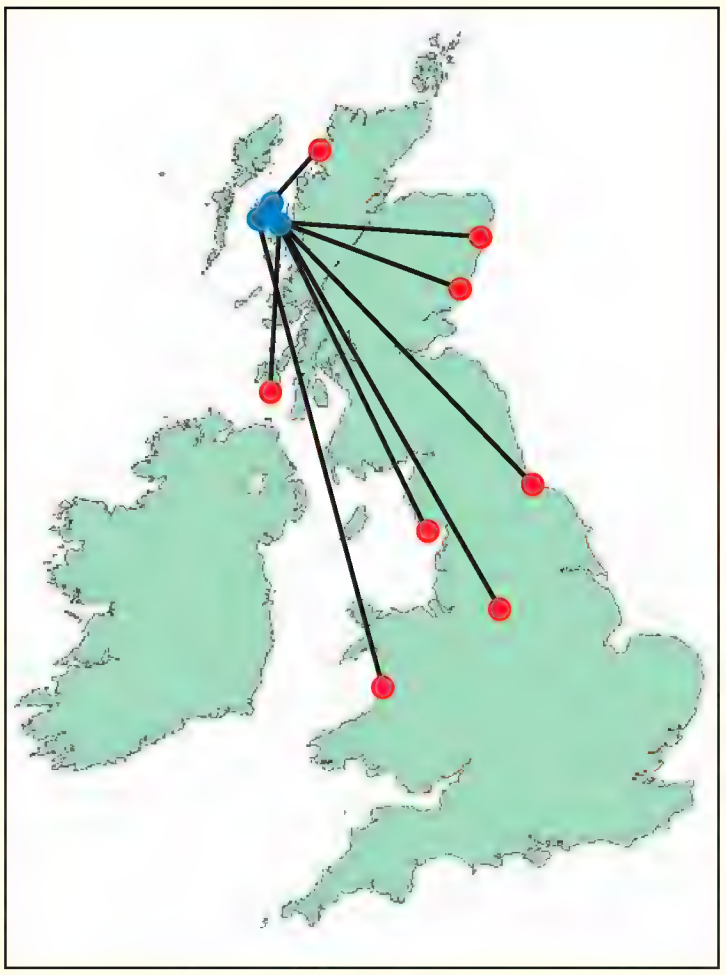

Figure 1. Twite recoveries to/from Skye, Highland, during 2020–21.

Selected ringing recoveries

Codes: Chk = chick, Juv = juvenile, Im = Immature, Ad = adult, m = male, f = female, vv = ring(s) read in field, R = retrapped, n = nesting, x = dead.

Gannet

115396	Chk	04/07/15	Skrudur, Iceland
	x	17/10/20	N. Ronaldsay, Orkney
			845 km SE

Glaucous Gull

2065051	Chk	28/06/20	Bjornoya, Svalbard
	Sghtd	15/01/21	Bay of Skaill, Orkney
			2,200 km SSW

Great Tit

S805516	JuvF	24/11/20	Ardheslaig, Highland
	Rtpd	18/04/21	Dunglass Island, Highland
			75 km E

A bit of a wandering Great Tit from west to east coast.

Moorhen

FH05576	Juv	18/12/08	Drummond, Inverness
	Rtpd	15/12/20	Drummond, Inverness 0 km

At over 12 years old this is the oldest Moorhen on BTO records. It has been retrapped a further six times between these dates.

Red-throated Diver

1440422	Chk	21/07/99	Hoy, Orkney
	x	15/12/20	Cork, Ireland 870 km SW

Sanderling

BT37594	Ad	14/05/21	Sanday, Orkney
	Sghtd	21/07/21	Ythan Estuary, N-E Scotland
			218 km S
H400440	Ad	01/12/19	Mauritania
	Sghtd	21/07/21	Ythan Estuary, N-E Scotland
			4,080 km N
H366669	Ad	23/01/17	Mauritania
	Sghtd	21/07/21	Ythan Estuary, N-E Scotland
			4,080 km N

Shag

SEE (green)	Chk	2017	Swona, Orkney
	Sghtd	14/07/21	Bullers o' Buchan,
			N-E Scotland 180 km S

An interesting movement of a chick from Orkney settling to breed in N-E Scotland. First evidence we've had of immigration from that far north. It had been seen wintering around nearby Peterhead.

Snow Bunting

TS08410	AdF	31/01/21	Cuppar, Evie, Orkney
		26/03/21	Stoovarfjorour, Iceland
			845 km NW

Plate 182. Long-legged Buzzard, Hillwell, Shetland, 1 September 2019. © *Tom Gale*

Long-legged Buzzard, Shetland and Fair Isle, 1 September 2019 – the first British record

T. GALE, with comments from N.J. RIDDIFORD & D. COOPER

After spending the summer of 2019 volunteering at Fair Isle Bird Observatory, I was fortunate to be able to return for a few weeks during September before I had to go back to university. During July there had been an impressive invasion of Two-barred Crossbills, among many other highlights, so I was very excited to be returning. However, whilst arriving in Lerwick on the Northlink ferry, I received a message confirming that due to adverse weather, I would be unable to get on to Fair Isle for at least another day. Thankfully, Paul Harvey very kindly agreed to let me stay at his house until I was able to travel and, of course, there are worse places to be stuck than Shetland! This meant that I was able to go out exploring the area and visit some legendary birding sites in the meantime.

The following day (1 September), I was able to head straight to Quendale (thanks to a generous lift from Jane Outram). After a few hours exploring, I decided to head back along the road towards Dunrossness and after passing through Hillwell, I suddenly heard some Ravens making a commotion above my head. I looked up and realised they were mobbing a raptor of some sort. My instant gut reaction was that it was a buzzard species, but it was a very odd bird - it was strikingly pale and seemed to be in a heavy state of moult. I could not make out much detail on the bird as it was silhouetted, so I quickly went for my camera to record as much of the bird as possible. Thankfully, I was able to get some shots and video as it headed into better light, before the Ravens drove it off over the Loch of Spiggie.

This all happened within about a minute or so but based on the features I had seen (mainly through my camera), it appeared it was most likely a Common Buzzard. This would have been a good record for Shetland, so I was quite excited by this. However, checking the photos on the back of my camera confused me - the bird was very strange! My photos did not reveal the upperparts, but the underparts seemed unusual, appearing largely off-white, with dark patches around the thighs and carpals. The heavy state of moult made the bird look even more confusing. At the time, I thought that structurally the bird seemed okay for Common Buzzard, based on my photos.

The following day, I was able to get the '*Good Shepherd*' to Fair Isle. As it happened, a presumed Honey-buzzard had been found flying south over the isle by Nick Riddiford several hours after I had seen the bird over Hillwell. The bird had passed through quickly, although Richard Cope had managed to get some record shots. Comparing our photos, we were surprised to find we had, in fact, seen the same bird as the state of moult and plumage matched perfectly. This was confusing from both ends - the impression gained by both Nick and Richard was of a long-necked and long-tailed bird, more fitting to the structure of a Honey-buzzard and yet my photos clearly revealed a much more Common Buzzard-like bird.

Nick commented: "My mind must have shut down after I saw the longish narrow tail (particularly) and somewhat projecting neck and head (as per the last series of photos in the Hillwell pictures sent), leading me towards Honey-buzzard. One thing was sure in my mind, that jizz-wise it did not remind me of Common Buzzard."

Over the next few days, we went back over the images together and asked a couple of others for their opinions, trying to decide what it was. This involved Googling images of various other species, but none of these seemed to click at the time and the consensus we reached was that it was a Common Buzzard, albeit an odd one. In retrospect, our contrasting impressions of the bird should have raised the alarm bells! Despite this, over the following weeks we could not confidently come up with a more plausible alternative. After four weeks of excitement on Fair Isle, followed by a sudden return to university work, the bird slowly worked its way to the back of my mind over the following months.

During this time, the bird was also under discussion by the Shetland Records Committee. Fast-forward to 2021, I received an email from David Parnaby with the subject line "first for Britain", which seemed intriguing... I opened the email and instantly got a thump of adrenaline, which is probably not the way it usually happens in rare bird finder's accounts. Attached

Plate 183. Long-legged Buzzard (composite video-grabs), Hillwell, Shetland, 1 September 2019. The right hand column shows a Raven for comparison. © *Tom Gale*

was a PDF from David Cooper, concisely titled "Long-legged Buzzard Hillwell Fair Isle". After a few moments of recomposing myself, I read through the PDF, which explained how this bird was a perfect candidate for a second calendar-year Long-legged Buzzard! The quality of Dave's notes was outstanding and made everything suddenly click into place. The birds 'strange' shape and plumage features could now be explained, and the different impression Nick and Richard had gained of the bird compared to me now made much more sense. This was clearly the realisation that we had missed at the time.

Dave also gave the following comments: "During the first circulation(s), I read the descriptions and looked at the images and I don't recall thinking too much about it. I've seen some 'whacky' Common Buzzards and even Nils van Duivendijk's Advanced ID Handbook makes mention of their plumage being extremely variable, from white to dark brown and almost everything in between.

The first time I watched [the video] I found it puzzling to say the least. To me, the video conveys a far more interesting impression, perhaps a combination of better capturing its structure combined with its plumage... a large, powerful, long-winged, long-tailed but rather long-necked raptor... but combined with a very pot-bellied appearance, its overall jizz reminds me much of a Rough-leg, as do its deep wingbeats.

The video also provides the first visual documentation of its upperparts that I find best-appreciated by freezing frames - the pale head, pale-based tail, sandy-coloured mantle and forewings, broad pale median-covert bar contrasting with its darker secondaries & hand, and then there are those eye-catching white bases to its outer primaries...

Playing around with the levels and saturation of some of the images hopefully better-reveal the true colours of its underparts, underwings and tail... the whole ground-colour of the bird's head, underparts and underwings including its underwing-coverts become whiter, its thighs cinnamon and its carpal patches more contrastingly obvious... and I wasn't anticipating its tail would 'colour-up' quite like it does...

Plate 184. Long-legged Buzzard comparison, Shetland, 1 September 2019. a) Hillwell © *Tom Gale* b) Fair Isle © *Richard Cope*

I couldn't help but feel the parts of the puzzle were falling into place and that a whole suite of characters were pointing in one direction... and on starting to read and digest various identification literature there was more... a staring white iris with dark pupil, large deep-based bill and stage of moult for a 2cy bird in autumn all seem consistent with it being Britain's first Long-legged Buzzard!! Even the date of occurrence seems as good as could be hoped-for!"

It would be easy to look back on this and feel frustrated that we were unable to identify the bird correctly at the time. However, considering the number of times I have dreamt of finding a bird like this, I much prefer to focus on the positive aspects! It has been a great learning experience for me, and I am also glad we were able to record the bird in sufficient detail in such a short time. Had the whole series of events unfolded differently, this bird could have simply slipped past as an 'odd buzzard'. Sightings of Long-legged Buzzard in Northern and Central Europe have increased over the past few decades (see Lawicki *et al.* 2013. *Birding World* 26 (8) 320: 332–343), and I hope this record may help future sightings be uncovered. Subject to acceptance by BOURC/BBRC, this would be the first record for Britain.

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Plate 185. Hooded Merganser, Loch of Kinnordy, Angus & Dundee, 3 May 2021. © *Gus Guthrie*

Hooded Merganser, Forfar Loch (November 2020) and RSPB Loch of Kinnordy (May 2021) – the first Angus & Dundee record

G. GUTHRIE

20 November 2020 was supposed to be the beginning of a weekend away in Edinburgh to celebrate our Silver Wedding. However, like many other people, our plans were scuppered by COVID-19.

Instead I took the dog out for a walk along the old railway line at Glamis. During our walk a message came up my phone (through the local grapevine) that a drake Hooded Merganser had been seen at the west end of Forfar Loch by Ron Lawie, a local birder. I had previously seen a drake Hooded Merganser at RSPB Lochwinnoch in 2016, as well as during holidays in America, but I was only five miles away and so got there soon after the message went out.

As I approached the sailing club area, where you can scan the west end of the loch, I saw a small group of Tufted Ducks off to the right. Just at that moment the Hooded Merganser popped up near to them, instantly recognizable with his distinctive head-shape and black and white plumage. It was slightly smaller than the Tufted Ducks and apart from the large white flash on its head, the breast was also white with the rest of the body being a chestnut brown colour. The bird spent the next twenty minutes fishing non-stop, always just out from the Tufted Ducks, constantly cocking its head to the side prior to diving.

I got several photographs before it finally flew further up the loch, towards the west end. I walked round the path, looking for any other birds that might be there, hoping for a Smew as there hadn't been one seen in Angus this year so far. I came back along the path twenty minutes later to find several other local birders looking for the merganser but to no avail, it wasn't seen again.

Fast-forward to 3 May 2021, as usual I'm at RSPB Loch of Kinnordy early in the morning before going to work. I found my first Wood Sandpiper of the year out on the bogbean, always a good place for them to stop on their way north. After getting some photographs, and putting out the news on the ADBC grapevine and BirdGuides, I walked along to the Swamp Hide to check on it since local youths sometimes use it for non-birding purposes.

From the hide, as I scanned the loch, I immediately saw a drake Hooded Merganser in the company of two female Goldeneye. I 'phoned to inform another local birder, Ted Logan, who was in the Gullery Hide as I continued to watch the bird for fifteen minutes before I had to head off to work. It gave very good views in the calm, clear conditions, showing off to the two Goldeneyes and feeding too. The large white panel on the black head and chest contrasting with the lovely chestnut body. The merganser then disappeared for several days before re-appearing again on 7 May, flying in to the west of the loch at 6:45 hrs while I sat chatting to Ted Logan, both of us being early birds.

Luckily, this time the bird stayed around longer for a lot of birders to see it, but could be very elusive at times. I last saw it on the evening of 10 May, at the east of the loch, it wasn't seen again to my knowledge. Regardless of where it came from, it was a nice addition to my 'Patch List'.

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Plate 186. Hooded Merganser, Loch of Kinnordy, Angus & Dundee, 3 May 2021. © *Mark Wilkinson*

Plate 187. Juvenile Spotted Sandpiper, Croy Shore, Ayrshire, 16 October 2020. © *Hayden Fripp*

Over-wintering Spotted Sandpiper, Croy Shore, winter 2020/21 – the first Ayrshire record

H. FRIPP & A. HOGG

The story of my discovery of the juvenile Spotted Sandpiper at Rancleugh Burn, Croy Shore on the morning of 16 October 2020 really had its genesis ten days previously at Doonfoot Shore, Ayr. That morning I had hurriedly combined a dog walk and quick scan of the birdlife there before teeing off for a round of golf. The text I sent out to my local birding circle read as follows: *"Doonfoot 1st light, Common Sandpiper, drake Gadwall, Little Egret, Wheatear, Grey Wagtail"* ...nothing unusual there I thought.

Later that day I received a couple of texts from far more experienced birder pals commenting on the lateness in the season of the Common Sandpiper and had I considered the possibility that it could have been a Spotted Sandpiper? Well no, I hadn't, was the honest answer and I spent the next few days with that uncomfortable gnawing feeling that I may well have potentially mis-identified my one and only chance of a North American rarity due to my haste and birding inexperience. Of course, the next few days were spent with my head in the guide books looking at the sandpiper plates in the highly unlikely chance that I may come across another one.

Fast forward to 07:50 hrs ten days later when I was out birding with the highly optimistic aim of finding a Yellow-browed Warbler in Ayrshire. A bright, mild and still Croy Shore was my destination, as good a place as any to find one in Ayrshire somebody had once told me. Starting from the Croyburnfoot end of the beach, I walked south checking the scrub and trees as I went, until approaching Rancleugh Burn. Here seaweed had gathered into several strand lines which had attracted a large number of feeding passerines, mostly Pied Wagtails and pipits. I had found a Water Pipit in the same spot two years previously, so stopped and started to work through the birds with more diligence. After five minutes or so, a small skulking bird moving between the seaweed lines caught my eye about 20 m ahead of me, a small Starling-sized wader, greyish brown above and clean white below with medium length bill and a skulking manner. I immediately recognised it as a sandpiper but knew that this time I needed to pay it closer attention.

After the potential identification *faux pas* of the previous week, the time spent reading the bird guides meant that fresh in my mind were four pointers that separated juvenile Common and

Spotted Sandpiper; shorter tail projection... tick, yellowish legs... tick, greyer less patterned mantle... tick, more distinct eye stripe... tick.

Cue panic stations as a fumble of camera straps, lens caps and picture settings ensued in my rush to get some identification shots taken before the bird flew, and have these sent out for a second opinion. My instinct was that I was looking at a juvenile Spotted Sandpiper. The bird though was seemingly unperturbed by me and my dogs presence and continued feeding, approaching as close as five metres at times, allowing me to take some good clear record shots.

Above are two of the first images I captured on my bridge camera and initially sent out with the magic of Wi-Fi connectivity and WhatsApp to Dave Grant and Fran McCrossan, who forwarded them to Angus Murray. I think they show nicely all four of the identification pointers that I had remembered and all were in agreement that I had found (or re-found!) a Spotted Sandpiper - a first for Ayrshire as I was later informed.

The bird remained about Rancleugh Burn for four days and then seemingly disappeared, presumably south. In late January though, only several hundred metres further south in a quieter area of Croy Beach, to his delight Fran McCrossan re-found the bird. Here it over-wintered until late April and where it eventually attained its spotted plumage and proved a favourite for the many Ayrshire birders who had the chance to observe it.

Angus Hogg takes up the story of its re-discovery in January 2021, and the bird's subsequent moult into summer plumage.

A well Spotted Sandpiper

On 16 October 2020, I was enjoying a leisurely stroll through the lower end of Glen App. At mid-day my mobile phone makes one of those strange utterances that only their kind can - it's a message from a birding friend who is telling me that "Hayden has just found a Spotted Sandpiper at Culzean Bay."

Hats off to Hayden Fripp for this discovery. This was a really good piece of birding, since you could easily pass this bird off for a Common Sandpiper. However, as he said later "Something about it wasn't quite right." A closer look showed that its shape was different, having a noticeably short tail, yellowish (not green) legs, a largely pink bill and, in flight, a shorter white wing bar which was mostly concentrated in the centre of the wing.

On 28 January 2021, Fran McCrossan was walking along the beach just to the south of its original location. He was looking for Fulmars on the Culzean cliffs, but a movement in front of him drew his attention to a small wader with a bobbing tail - a Spotted Sandpiper - Spotty had probably never left this general area! Its ability to hide and run, from people and dogs, rather than fly, could make it very elusive. With some severe spells of cold weather setting in during late January and February, this put the

Plate 188. Juvenile Spotted Sandpiper, Culzean Bay, Ayrshire, 31 January 2021. By January 2021, it had settled into an area of shoreline just south of Goat's Green. © *Angus Hogg*

Plate 189. Juvenile Spotted Sandpiper, Culzean Bay, Ayrshire, 15 & 24 March 2021. By mid to late March 2021, the spots had started to become more obvious. © *Angus Hogg*

bird under a bit of pressure. However, it remained faithful to the stretch of beach just south of Goat's Green, and came through the adverse weather. Life would have been difficult for the sandpiper at this stage, as it foraged among seaweed for invertebrates.

Plate 190. Juvenile Spotted Sandpiper, Culzean Bay, Ayrshire, 1 & 9 April 2021. By early April 2021, it was showing a larger amount of spotting, and some wing moult is also evident. © *Angus Hogg*

At this point, another issue began to emerge which was of interest to several Ayrshire birders: when would it start to show its spots, and just how spotted would this sandpiper be by the time it was ready to migrate? When it was re-discovered in late January, there was no indication of any dark, blackish-brown spots which give the bird its name. The bird was, effectively in its first-winter plumage, having moulted most of its juvenile feathers. During its winter stay, it would start to moult its flight feathers and, by early February some inner primaries looked very worn. Body moult was still some time away.

By early March, there was the suggestion, particularly on the rear flanks, that some dark spots were appearing and, by mid-month, some breast spots had emerged. From this point on, it started to show a wider covering of spots. By early April, the spotting had covered much of the breast and belly. Since this bird was entering its first full breeding plumage, the extent of spotting was a bit more restricted, and perhaps less spectacular, than on an adult but, nonetheless, it did show a remarkable change from earlier in the year.

Postscript

By the time it was last seen in Culzean Bay, the Spotted Sandpiper still showed signs of 'immaturity'. It still retained greyish-brown sides to neck and breast areas and the extent of the dark spotting was scattered and less extensive than on most adults.

The Ayrshire bird was a wonderful discovery in the autumn of 2020, and its confiding nature throughout its stay earned it the affection of the many Ayrshire birders who had the opportunity to see and photograph it.

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Plate 191. Ruby-crowned Kinglet, Isle of Barra, Outer Hebrides, 15 November 2020. © *Bruce Taylor*

Ruby-crowned Kinglet, Cuithir, Isle of Barra, Outer Hebrides, 12–28th November 2020 – the first British record

B.A. TAYLOR

The Old Manse at Cuithir is situated a few hundred metres from the Atlantic on the west side of Barra. The house itself is an imposing structure, currently being restored to its former glory by a new owner. Between the building and the road is a compact area of woodland consisting of a few lines of lichen-encrusted spruces and a small stand of Alders, poplars and willows. Although the east side of the island has many well-vegetated gardens and small woodlands, the west side is altogether more open: here, the roadside trees at the Old Manse provide one of the best areas of cover for migrants.

Although the grounds are private, the trees can be viewed well from the road and I check them daily in spring and autumn. Over the years I've found a few good birds here. During our first autumn on Barra in 2010 they produced a Firecrest, one of my favourite species and still a rarity in the Outer Hebrides, followed by a couple of Barred Warblers and a Red-breasted Flycatcher over subsequent years, then in 2016 an Arctic Warbler and a Wryneck last September. All good birds to find and proof that the Old Manse 'works' as a migrant trap, but I knew that sooner or later it would attract something altogether rarer.

12 November was a full waterproofs and heavy boots kind of day, as a fast-moving Atlantic depression made landfall on Barra, bringing intermittent rain and a southerly gale that was forecast to strengthen as the day wore on. Kathy and I were out birding early, trying to cover as much ground as possible before conditions got too bad. We pulled over at the Old Manse around 10:30 hrs. With BBC Radio 2's 'Pop Master' just starting on the radio, Kathy wouldn't be prised from the car, so I got out and

Plate 192. Ruby-crowned Kinglet, Isle of Barra, Outer Hebrides, 15 November 2020. © *Bruce Taylor*

walked along the road scanning the trees as they thrashed around in the gusts. Having not seen anything I walked back past the car and slowly made my way down the track towards the entrance to the property. I was halfway down when a movement caught my eye. Something shot across low into the base of the rose bush ahead of me. I moved a bit closer and the bird flicked out and back in again. It looked tiny like a Goldcrest but it was in an odd place and doing an odd thing for that species. I had another split-second view as it hopped up into the rose before dropping again. It looked too bright for Goldcrest though I felt there was an element of grey about it too. My mind was racing to figure out what it could be. It was behaving more like a Yellow-browed Warbler but with that impression of grey and being here in November, I began to wonder if it might turn out to be a Hume's Warbler. I looked back towards Kathy in the car and beckoned her to join me. At this point I heard a call that I didn't recognise: a kind of '*tack*' with a strange almost springy quality to it. The closest match I could think of was perhaps a *Sylvia* or *Acro* species. Given that the bird in the rose bush clearly wasn't one of those, I figured there must be two birds of interest here.

I looked back to see Kathy still listening to Pop Master in the car, waiting for 'Three-in-Ten'. Waving frantically at her, she realised I was onto something and was out of the car and coming down the track in seconds. I took a couple of paces towards the rose bush, trying to get a better view of the bird which duly hopped up onto the back of it. Raising my bins, I had my first good view. It didn't look like what I was expecting: there was no supercilium, so this clearly wasn't a Hume's or Yellow-browed, in fact it wasn't a warbler at all. No, it was a 'crest', but it was unlike any Goldcrest or Firecrest I'd ever seen. It occurred to me that this might be something altogether rarer. I couldn't quite see the top of its head, so I stepped sideways for a better angle and raised my bins again. I was now just a few metres away and with crystal clear views I could see it in fine detail. It had no crown stripe... then the penny dropped. Kathy was just behind me and edging in closer as I said to her, "There's a first for Britain in this bush. Ruby-crowned Kinglet!"

For the next few minutes we had point-blank views of the Kinglet as it bounced around the bushes just in front of us, at times coming to within two metres. It was calling a lot, giving that odd call I'd heard moments before. With photos and a sound recording secured, and thus the initial pressure of the find removed, I needed some time for this to sink in. I've been birding for over forty years and I love everything about it, but most of all I love the buzz of finding rare birds from far-flung places. It's been a long-term ambition of mine to find a first for Britain, albeit one of those ambitions that languish in the longest of long shot, never really likely to happen categories, but now in an instant it had happened. It was a hell of a shock, so much so that I had to sit down on the wet grass for a few minutes while I got my head around it and composed myself!

I phoned Ian Ricketts with the news and he arrived soon after, accidentally pressing the horn as he got out of his car. The Kinglet duly vanished into the trees and it was an anxious hour before Ian got to see it. The wind was by now gusting at force eight, far from ideal conditions for seeing a tiny passerine in trees. We had a few glimpses of the bird over the next hours but it kept going missing. It was well into the afternoon before we realised it was actually spending much of its time frantically feeding on the ground among the leaf litter. I for one had no idea that Kinglets did this.

One of the best things about finding a rarity is sharing it with others and in normal times we would have released the news as quickly as possible, but these weren't normal times. With COVID-19 again spreading around the nation, the risk to our remote community from a large number of birders travelling to Barra from across Britain was far too great. While some birders elsewhere bandied news of rare bird finds around with no regard for the island communities they were endangering, we weren't willing to take such a disrespectful approach. We followed the only responsible course of action and suppressed the news. I explained this to the local police, who were ready to act if news leaked out, but otherwise it remained a closely guarded secret between the three of us.

It was a stressful situation to be in, making the find of a lifetime and not being able to tell anyone. We hoped the Kinglet would be a one-day bird like the Irish one in 2013, but when it was still there the next morning our hearts sank and we realised it might stay for a week or two as it replenished its fat reserves. We kept tabs on it by checking the site each day but limiting the time we spent there, the concern being that our fellow islanders would have their suspicions aroused if we were standing in the rain staring at the same clump of trees every time they drove past! We even devised a cover story in case anyone should ask what we were looking for.

The Kinglet settled into a routine. In good weather it had a feeding circuit in the spruces, where it foraged branch to branch in a Goldcrest-like manner. When the sun shone it would frequently fly-catch from the treetops, something I've never seen Goldcrests do. When the weather turned bad, as it often does here, it returned to ground-feeding under the broad-leaved trees. It had the ability to colour-morph to the max: in good light the greens in its plumage really shone out, but in overcast conditions it almost looked like a different bird as it took on an altogether greyer tone, with its split white eye ring standing out, giving the illusion of a freakishly large eye. Lacking a crown stripe, it clearly wasn't an adult male, so it was either a female or first-winter bird, most probably the latter due to its pointed tail feathers. Although it called frequently on the first day, it gradually became quieter as the days wore on.

There was no sign of it on the 20th and when the three of us couldn't find it on the 21st either, we suspected it had departed. With an abundance of caution we decided to give it one more day, just to be certain it was gone. We spent the morning of the 22nd searching but it clearly wasn't there. I even crawled around under the spruces looking for a body in case it had died! After an eight-day stay, it appeared that the Kinglet had left, most likely during a break in the weather on the evening of the 19th. We all agreed that now was the time to put the belated news out, so on the afternoon of the 22nd I did just that, via Twitter and Rare Bird Alert. I must admit to feeling very nervous as I did this, not knowing how birders would respond. As I sat in my lounge typing out the tweet, it felt akin to entering the launch codes for a missile attack, expecting all hell to break loose. As it turned out though, the response from birders, islanders and everybody else was overwhelmingly positive and supportive of our decision not to release the news while the bird was still present. It was an enormous relief to get everything out in the open after keeping a lid on it for the past eleven days: a weight had been lifted from my shoulders. We'd pulled it off and kept our community safe in the pandemic. Our stress levels began to subside. I had my first good night's sleep since the Kinglet's arrival and life began to return to normal. We were still out birding from dawn to dusk of course but our daily stops at the Old Manse produced nothing more interesting than a Woodcock plus the usual two Wrens, two Blackbirds and a single Dunnock that had been around for weeks. And that was the end of the story, or so we thought.

Plate 193. Ruby-crowned Kinglet, Isle of Barra, Outer Hebrides, 15 November 2020. © *Bruce Taylor*

My phone rang late in the afternoon of 25 November. It was Ian, and he sounded a bit odd, almost hesitant. He'd stopped off at the Old Manse on his way home and in the late afternoon gloom he'd briefly seen something: something he said looked a lot like the Kinglet! I was convinced he was joking and waited for him to admit it, but the punchline never came. Kathy and I had been there ourselves that afternoon and must have missed Ian by minutes, but we hadn't seen the bird. No, I was sure it was a wind-up and kept checking my messages through the evening expecting a 'Gotcha!' from Ian. When it didn't arrive I thought about calling him back, but if it was the prank I expected, that would be proof that he'd got me. So I didn't call!

The next day was unseasonably calm and sunny. When Kathy and I pulled up at the Old Manse in the late morning there were clouds of insects buzzing around the tops of the spruces. We spent an hour scouring the site without any sign of the bird. Ian's call was still bothering me: the Kinglet clearly wasn't there, but if he had been joking, it was dragging on a bit too long. We began to wonder if there could be another explanation. We'd all been under a lot of pressure lately thanks to this bird; it occurred to us that even if Ian genuinely believed he'd seen it again, maybe he hadn't: all the evidence suggested it was long gone. Maybe he was losing the plot and imagining things; after all it had been almost dark when he'd been there the previous day.

I was working the next morning so didn't get out birding until after lunch. We reached the Old Manse around 15:00 hrs with the light already beginning to fade. As I wandered down the track something flew up from the clump of Monkshood next to the gate, disappearing into the trees. I had the most fleeting of views in my peripheral vision but I thought it was possibly a Chiffchaff-type species. I needed to see it again, so walked along the road scanning the trees. With no sign of it, I crept back down the track and again something flew up from the Monkshood. Kathy had a better view than me and said it looked grey like a male Blackcap. I moved towards the road again, but a moment later saw Kathy pointing at something and heard some choice words followed by 'Kinglet!' With that, the Kinglet hopped up onto the branches by the track and bounced around mockingly just metres away. The joke was well and truly on us.

Insomnia was back on the cards. When we got home I phoned Ian, who sounded relieved, as he'd started to wonder if he was losing it. We had to confess we'd been thinking that too. But now we were back to square one. The Kinglet was present and the whole world knew about our find. What if a passing birder took a nostalgic selfie in front of the site that recently held a first for Britain, only to find the bird itself had photo-bombed the picture? Someone else would think they'd lost the plot! So there we were, in a scenario not so far removed from the ending of The Italian Job: ostensibly home-free having pulled off the perfect crime, when the bus careers off the road and everyone is left dangling. What to do now, and where had that bird been anyway? It remained reliably in the trees from the 12–19th, but definitely wasn't there after that. We could only speculate it might have taken to foraging in the brambles over the burn behind the Old Manse, returning to roost in the trees. We mooted the unthinkable idea that it might try to over-winter, though we knew no small passerine ever survived a winter there. There was only one thing to be done: pretend this had never happened. When islanders stopped to ask me what had happened to the bird, I replied that it was probably relaxing in a plantation in Ireland now, living the good life with its 'Cresty cousins'. Ian saw it once more, on the 28th, but I never set eyes on the bird again though we redoubled our checking of the site and elsewhere, just in case. A sense of dread filled us each day we stopped at the site, but the days became weeks, winter set in, the plantation froze over and even the Wrens disappeared. I began to sleep through the night without starting awake, thinking I heard that call.

Birding is great for relaxation and mental wellbeing... except if you find a first for Britain in a pandemic!

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Crag Martin, Kirkwall, Orkney, 18 November 2020 – second Orkney (3rd Scottish) record

G. GAY

By mid-November things have usually calmed down for us bird-wise on North Ronaldsay, and this showed by the fact it was time for Dante to head south for the winter, and I had left the island for the first time since March. We'd had a very leisurely day shopping in Kirkwall, on Mainland Orkney, on 18 November, been to a nice café for lunch and were walking back to Heather's flat - my long-suffering other half – for the afternoon. While heading back Heather told us she needed to bank a cheque. When we arrived outside the bank at the end of Victoria Street Heather went in, while Dante and I remained outside. With all the COVID-19 restrictions, the bank could do without two extra bodies in it after all.

Plate 194. Crag Martin, Kirkwall, Orkney, 18 November 2020. © *George Gay*

While stood there I noticed what appeared to be a hirundine flying around the chimneys further down the narrow street. With no binoculars on me I just stood and watched as the bird did a couple of loops: it felt big and quite dark... too big to be a Swallow, but that's silly...

"Dante? Can you have a look at this bird flying around... it's a hirundine... it's big and I'm pretty sure it's uniformly brown?" He replied "Oh s**t, what is that?" We got a bit closer, and further views suggested we were onto something good - it was a fairly uniform dusky-brown colour, and I somehow came to the conclusion it was a rare swift of some sort. I was incorrect, but without binoculars it's not easy! I decided to run back to the flat and get the bins and a camera.

When I arrived back, now in a greater sense of panic than I'd left in, I was met with a grinning Dante. "It's just done a close fly-by, it's got white tail spots mate!" "So...f**k...Crag Martin!?! What's that doing here? Better phone Paul Higson!" A lot of swearing and hugging was going on by now.

A rather garbled phone call to a shocked Paul, and one to a very confused Alan Leitch and folk were on their way. By this point we had caused a bit of a scene in our jovial ecstasy - it is not often the High Street sees two young lads jumping around, talking loudly and trying to photograph something up at roof height! It was not long before a small, socially distanced gaggle of Orcadian twitchers had appeared, and were goggling this very out of place 'mega'. The bird performed superbly - even landing a couple of times on roofs and chimney stacks. I'm not sure I'll find a bird in a weirder place than a high street, but I can always dream!

The bird remained until 15:50 hrs, but was not seen again for the rest of the day, and was not present the following day.

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Plate 195. Crag Martin, Kirkwall, Orkney, 18 November 2020. © *George Gay*

Crag Martin status in Scotland

This species breeds on cliff ledges in mountainous areas of the Palaearctic from Iberia and NW Africa eastwards through the Mediterranean bordering countries into Asia as far east as SW and NE China. Expansions of the range have been reported in Austria (where motorway bridges are used as nest sites), Switzerland, the former Yugoslavia, Romania, and Bulgaria. European populations are mostly resident, or partial migrants, with northern populations wintering within the resident areas of its range around the Mediterranean. Some birds winter further south in Morocco, Mauritania and the Nile Valley.

There have been 12 accepted records of Crag Martin in Britain to the end of 2019, with two of these in Scotland:

1999 *Orkney, one, Davey's Brig, Finstown, Mainland, 3 May*

2018 *Fair Isle, one, North Haven & Furse, 14–16 May.*

The other records are from Cornwall (22 June 1988); Sussex (9 July 1988; 8 October 1995; 21 September 2008 & 22–23 May 2019); Gwynedd (3 September 1989); Leicestershire & Yorkshire (17–18 April 1999), Surrey (22 October 2006); Yorkshire (11–13 April 2014) and Derbyshire (8–19 November 2015). There have been none in Ireland.

The British records split into spring, summer and broad autumn peaks, with find dates from 11 April to 22 May, 22 June to 9 July, and 3 September to 8 November. The geographical spread of records favours the southern half of England and Wales, with overshoots to central England, while the two Scottish records are typical of spring migrants that have overshot the breeding areas and reached a distant coast/water body which acts as a barrier to further displacement. The Kirkwall bird continues the dominance of the Northern Isles for Scottish records, but differs in that it aligns with the autumn window of occurrence while extending it by 10 days.

The earlier records were all 'one-day' birds, but more recent occurrences (since 2014) have involved birds that have lingered for a second or third day, while the 2015 Derbyshire bird was present for 12 days - a possible consequence of climate change?

Plates 196 & 197. First-winter male Pine Bunting, Ardheslaig, Torridon, Highland, 21 November 2020. © *Will Miles*

Pine Bunting in Ardheslaig, Torridon, Highland, and Isle of Tiree, Argyll, November 2020

W. MILES, T. SHANNON & J. BOWLER

Ardheslaig, 21–25 November 2020 - second Highland record (WM)

In the morning of 21 November 2020, I was reading about Pine Martens but stopped to look out of the window, in the hope that a marten might suddenly appear in the garden. They are not uncommon in gardens in Torridon, so this was not an entirely fanciful thought.

I happened to glance at the hedge, less than five metres away, and a bird hopped out that I didn't recognise. These were my first thoughts: bunting; unusual head pattern; plumage unusually cold-toned, drab-brown, grey and frosty-white; somehow it recalls a Corn Bunting, except there's chestnut streaking on the flanks; but it also recalls a Yellowhammer, except there's no yellow.

I swapped my book for my camera, luckily close by, took a few photos and the bird then flew off. I had seen it for only a few minutes. Upon opening the photos on my laptop, an apparent male Pine Bunting sprang onto the screen... but the thing is, although I could clearly see this, at first, I simply didn't believe it. I was in a mountainous region, relatively deep inland, on the west side of mainland Scotland. The idea that a very rare bird from far-east Asia could have suddenly dropped into the garden seemed just too unlikely to believe. Pine Bunting? Impossible! I looked at the photos again and zoomed in on one of them (Plate 196). I thought I could see faint muted yellow in the uppermost region of the outer fringes of two of the primary feathers; okay, Yellowhammer... surely it's a Yellowhammer... surely? But it's a Pine Bunting... but that's impossible. Yellowhammer then? It's a Pine Bunting... jeez, this is crazy! Laughing at my own ID-paralysis, I sent a few photos to Dave Fairhurst, whom I've known a long time, is passionate about rare birds, and helpfully direct. My phone rang immediately. Omitting all F-bombs, the conversation went something like this, DF: "Do you know what that is?", WM: "Yes I do but I don't believe it.", DF: "Sake! You jammy! That's amazing! Well believe it. It looks good for a male Pine Bunting."

The bird was not seen again on the 21st, or on 22nd, but it returned to the garden for a few minutes each afternoon on 23rd and 24th while I was mist-netting and ringing common garden birds - it was trapped on both days. It was ringed on the right leg, measured, photographed, and feathers it shed in the bird bag on the 24th were collected for DNA analyses.

During these four days, I discussed the bird with DF, Paul Harvey, Roger Riddington and Brydon Thomason, including its plumage tones and the extent, and potential hybrid implications, of limited yellow pigmentation apparent in certain very restricted areas of the plumage. It was interesting how different tones were perceived differently by different people, and that opinions varied, also how the appearance of different tones varied in different photos, in different light conditions, against different backgrounds, and using different hardware and software to examine the photos (to my eyes, colour vibrancy was particularly heightened using my phone and phone-messaging apps).

The features of the bird are documented below, including the yellow pigmentation, and genetic analyses and hybrid potential are discussed. News of the bird was not released at the time due to sensitivities regarding the spread of COVID-19 (although Highland and many Scottish islands were in COVID-19 Tier 1, other regions of Scotland and the whole of England were at higher levels). It was last seen in Torridon on 25 November, briefly in the garden at 08:00 hrs. Remarkably, on 29 November, what was presumably the same, ringed, first-winter male Pine Bunting was seen on Tiree in Argyll (see following account).

General description, biometrics and call

A large bunting that looked bulky and long tailed. The pattern and colours of the plumage and bare parts are shown in the accompanying series of in-field and in-hand photographs (Plates 196–203). Light conditions for photography were variable, darkest on the 22nd because the bird was trapped near the end of the afternoon and it was a dark, overcast, autumn

Plate 198. First-winter male Pine Bunting, Ardheslaig, Torridon, Highland, 21 November 2020. © *Will Miles*

Plate 199. First-winter male Pine Bunting, Ardheslaig, Torridon, Highland, 24 November 2020. © *Will Miles*

day in the Highlands. Plates 196–198 were taken through a glass window using a Canon EF 300mm 1:4 IS lens with UV filter & a Canon DS126171 EOS 40D DSLR. Plates 199–203 were taken using a Samsung Galaxy A7 24MP 27mm f/1.7 phone camera.

The bird's striking head pattern, including blackish lateral crown stripes, rufous-chestnut around the eyes and throat, and white in the ear-coverts and crown, identified it as a male (Plates 196–199; Shirihai & Svensson 2018). The tail feathers were all rather narrow, abraded and sharply pointed, and were unmoulted juvenile-type feathers (Plates 200c & 201). Also, the primary coverts were sharply pointed and juvenile-type (Plates 202 & 203). These features aged the bird as a first-winter individual (first calendar year, 1CY; Norevik *et al.* 2020). Additionally, there was a moult limit in the greater-coverts and another in the secondaries (Plate 202) that also supported aging as a first-winter (Norevik *et al.* 2020). The inner three greater-coverts were slightly longer, less abraded, had a different colour pattern, and were newly moulted adult-type feathers, compared with the outer six greater-coverts, which were older, juvenile-type feathers (Plate 202). Similarly, the innermost secondary plus all the tertials, were fresher, more richly coloured, and were newly moulted adult-type feathers, compared with the outer five secondaries, which were older, juvenile-type feathers (Plate 202).

Basic biometric measurements and wing formula were recorded (Table 1). These all fell within the normal range of Pine Bunting (Shirihai & Svensson 2018). The only slightly unusual feature in this respect, was that as well as the third, fourth and fifth primaries being emarginated, the sixth primary was emarginated, although only very weakly (Plates 202 & 203).

The bird was heard to call every day that it was seen. It's always hard to describe the sound of a call using words, but it was quick, sharp, single-syllable and sounded like '*tsep*', occasionally repeated and then sounding a bit like a dripping tap: '*tsep - tsep - tsep*'.

Assessment of yellow pigmentation in the plumage

The breeding ranges of Yellowhammer and Pine Bunting overlap in western and central Siberia, northern Kazakhstan and northwest Mongolia, and hybridisation occurs within this contact zone (Panov *et al.* 2003). First-generation hybrids typically show a range of distinctive and clearly unusual plumage characteristics (e.g., see Aye & Schweizer 2003, Occhiato 2003, Panov *et al.* 2003). However, the plumage characteristics of second-generation hybrids and more distant backcrosses are less distinctive and can present identification problems

Table 1. Biometric measurements and wing formula of the Torridon bird (BTO ring: TS09549), with respective data ranges for Pine Bunting and Yellowhammer given by Shirihai and Svensson (2018).

	Wing length (mm)	Tail Length (mm)	Wing point	Primary 2 equals	Emarginated primaries
Torridon bird	92	76	Primary 3	Primary 4	Primaries 3–6
Pine Bunting	90.5–100 (males)	73–84 (males)	Primary 2–4	Primary 3/4/5	Primaries 3–5
Yellowhammer	87–97 (males)	71–81 (males)	Primary 2–4	Primary 3/4/5	Primaries 3–5

Plate 200. a) Left underwing, b) right underwing and c) tail of first-winter male Pine Bunting, Ardheslaig, Torridon, Highland, 23–24 November 2020. © *Will Miles*

(Occhiato 2003, Panov *et al.* 2003, Shirihai & Svensson 2018). Many observers believe that any trace of yellow in the plumage of a Pine Bunting is diagnostic of genetic impurity and categorisation as a hybrid, but many other observers believe this is less certain, and it is fair to say the question of what exactly constitutes an 'acceptable' Pine Bunting has split hairs, fuelled debates, and generally switched back and forth for many years. The primary aim of this write-up is to document the bird in Torridon as fully and accurately as possible. Thereby people can form their own opinions on its purity and acceptability using the full range of information. Given the potential hybrid and plumage considerations, a detailed assessment of the bird's plumage for yellow pigmentation was crucial.

The entire bird was closely examined in the hand, and all photos were closely examined, for any traces of yellow (Plates 196–203). To my eyes, the plumage completely lacked yellow except for as follows. In both wings, faint yellow pigmentation (but also pale beige/brown) was apparent in the upper third of the outer fringe of the third and fourth outermost primary feathers (hereafter P3 and P4), but the lower two-thirds of the outer fringe of these feathers was pure white (Plates 196–199, 202 & 203). In subtle contrast to this, the outer fringe of the second outermost primary was entirely pure white, and the outer fringe of the fifth outermost primary was pale beige/brown along the upper third but entirely pure white along the lower two-thirds (Plates 196–199, 202 & 203). Faint yellow pigmentation (but also smudgy buff/beige) was also apparent in a narrow band along the leading edge of the lesser underwing-coverts in both wings, and within a small, pale spot in the 'armpit' of the right underwing, but not in the left (Plate 200). This spot was not seen in the hand and was only detected on one photograph (Plate 200b). Conceivably, it could have been caused by the lesser underwing coverts of the inner wing lying closely together in the 'armpit' when the wing was held semi-folded, as in the photo, and the yellowish/buff/beige tones in these feathers. The appearance of these yellow tones in the underwing and on the fringes of P3 and P4 varied in different photos and at different levels of photo magnification, but although distinct, to

Plate 201. a) Underparts and b) upperparts of first-winter male Pine Bunting, Ardheslaig, Torridon, Highland, 24 November 2020. © *Will Miles*

my eyes always looked muted and dull and never pure or bright. Yellow tones were never detected during field views of the bird through binoculars, including at close range.

DNA analyses (Thom Shannon)

While genetic identifications of rare vagrants are becoming ever more routine, for some species groups the practice is of limited use. Distinguishing between Pine Buntings and Yellowhammers is one such case. Confirming an identification requires comparing DNA sequence from a bird of interest against a publicly accessible database of previously sequenced birds, such as Genbank. Therefore, identifications are dependent on there being sequences from a number of individuals of all relevant taxa present in the database and are also constrained by which parts of the genome have been sequenced.

As mitochondrial DNA tends to be the focus of most phylogenetic studies, this part of the genome is often all that is available for comparison. In the case of Pine Buntings and Yellowhammers, previous research has shown that hybridisation, recombination and introgression likely occurred across a relatively very broad area of Siberia 25,000 to 55,000 years ago, and both species now share identical mitochondrial DNA (Irwin *et al.* 2009). This rules out using these common markers as a means of securing an identification.

Irwin *et al.* (2009) investigated one nuclear gene, but this too showed that all discovered variants of the gene were present in both species. As these are all the data available in Genbank for comparison, we currently have no means to conclusively identify the Torridon bird by DNA analyses.

Irwin *et al.* (2009) also showed that at the population scale there are differences in the frequency with which certain variants of a number of other genetic markers occur within each species, such that a population of allopatric Yellowhammers could be separated

Plate 202. Right wing of first-winter male Pine Bunting, Ardheslaig, Torridon, Highland, 23 November 2020. © *Will Miles*

Plate 203. Outer feathers of the right wing of first-winter male Pine Bunting, Ardheslaig, Torridon, Highland, 23–24 November 2020. These photos show how the appearance of colour tones in the same feathers can vary in different light conditions and against different backgrounds. © *Will Miles*

from a population of allopatric Pine Buntings or a population of hybrids from the contact zone. However, as all variants appear to occur in all populations at some frequency, this technique also could not be used to ascertain the identity of a single individual.

A feather sample has been stored at the University of Aberdeen in case future studies allow for the Torridon bird to be investigated genomically for hybrid potential, however no conclusive results are achievable at this time. Given the levels of introgression identified between these two species, it is unsurprising that atypical plumage features sometimes arise, even in individuals from well outside of the current contact zone.

Personal conclusions

Genetic identification of the bird, including diagnosis of potential hybrid status, was not possible. Therefore, currently, phenotypic characteristics are the only means by which the bird's status as a pure Pine Bunting or some degree of Pine Bunting x Yellowhammer hybrid, can be assessed. This is a potentially subjective process however, dependent on how different observers perceive and interpret visible features, notably in this case, traces of yellow pigmentation in the plumage.

Personally, I think it is fair to say that the yellow pigmentation in the bird's plumage was marginal, given how it was very weak, apparently admixed with other tones, and only occurred in a very few

tiny areas - meaning that in this regard, I think the bird's species/hybrid status is extremely difficult to assess. It was interesting (in a rather niche and esoteric way though), to compare the photos of the bird with images of Pine Buntings and Yellowhammer x Pine Bunting hybrids published in books, papers and online. Underwing photos seem to be extremely rare, and virtually all comparisons were with in-field photos of birds in normal standing and perching positions, or in-hand photos of birds held in side-profile. In summary, what became an extensive search of hundreds of photos, mostly online, showed that in Pine Buntings photographed within the species' core east Asian range (e.g., Korea, eastern China, eastern Mongolia and southeast Siberia), the lower two-thirds of the outer fringes of P3 and P4 were white, but there was considerable variation in the colour and tone of the upper third, ranging from dark brown, through to lighter brown, warm brown, chestnut, beige, buff, weak yellow and white. Such individuals with the upper third of the outer fringes of P3 and P4 weak yellow/beige/buff matched the Torridon bird.

A brief search was also made for images of vagrant Pine Buntings in the UK accepted by the national rarities committee (BBRC). This found several individuals with similar or more extensive amounts of yellow in their plumage compared to the Torridon bird. Also, a search was made for any relevant information on carotenoid pigments (derived from diet and responsible for red, orange and yellow plumage colours), for example whether yellow tones in a Pine Bunting's plumage could ever result from a particular diet, in a similar way to how pink tones in the plumage of some non-passerines result from feeding on crustaceans. Perhaps unsurprisingly however, no published research on carotenoids specifically relevant to this subject was found.

In conclusion, based on the visible features of the Torridon bird, and comparisons with photos of Pine Buntings in east Asia and of accepted vagrant individuals in the UK, it seems reasonable to call it a Pine Bunting. Hence, throughout this write-up I have referred to the bird as this species. Others might disagree though. One thing is certain however, bird identification is fun but sometimes can also feel brain-achingly technical! This bird has left me with two final thoughts: 1) rare vagrant birds from thousands of miles away can, and do, turn up absolutely anywhere, and their occurrence and survival - and sheer surprise-unlikeliness! - is totally incredible; 2) if I saw a male Yellowhammer in Scotland with completely normal plumage except for the outer fringes of P3 and P4 white rather than yellow, then I wouldn't call it a Yellowhammer x Pine Bunting hybrid, it would just be a Yellowhammer, wouldn't it? (Perhaps I should just stick to Pine Martens...)

Acknowledgements

I am extremely grateful to Lizzie and Philip Bacon for my time in Torridon. Thanks go to Dave Fairhurst, Paul Harvey, Roger Riddington and Brydon Thomason for useful discussions about Pine Bunting identification.

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Plate 204. First-winter male Pine Bunting, Balephuil, Isle of Tiree, Argyll, 29 November 2020. © *John Bowler*

Isle of Tiree, Argyll, 29 November 2020 - first record for Argyll (presumed to be the same bird as in Ardheslaig) (JB)

At 10:00 hrs on 29 November 2020, a calm, overcast morning, I walked into our back garden at Balephuil, Tiree, to stock up our bird feeders with seed. Whistling as I did so, I was quickly surrounded by House Sparrows, Chaffinches, Blackbirds and a Robin, which are accustomed to being fed there. Approaching the second feeder, I became aware of a bird calling from trees along the boundary between our garden and our neighbour. It seemed to be calling in response to a calling Robin and I could not quite place the call. It produced a bunting-like '*Tsik!*' as well as a descending '*Chu*' call. I assumed it was going to be a Reed Bunting, although the calls were not quite right, so I vaguely started thinking about Yellowhammer (a very rare bird out this way). However, it then started producing more Goldfinch-like '*Chid-up!*' calls, which confused me further, so I walked closer towards the trees to try to locate what was making the calls.

Eventually, I spotted a rather dumpy, long-tailed looking bird sitting in some dense but bare branches near the top of a small tree and checked it through my bins (which I always carry). At a range of just five metres, I was confronted by an unfamiliar bird that was partly concealed by branches. Key features were a big, pale, blue-grey bunting-like bill, rich chestnut streaks on the breast-sides and flanks, a rather bold white wing-bar on the median coverts, with another less bold white wing-bar on the greater coverts, a very dark-streaked crown with a paler central area, a broad dark line through the eye (heaviest behind the eye), a pale white oval on the ear coverts bordered darker, a blackish throat that was centrally paler, and a long tail showing much white on the outer tail feathers. The mantle bore a mix of blackish and rich-brown streaks, forming 'tram-lines' not unlike those on the back of a Dunnock, whilst the rump and upper-tail coverts were a largely unmarked rich rusty brown, the edges of which appeared very scaly when viewed from the side. It was a Pine Bunting! Knowing the great rarity of this species on the west coast of Scotland (plus the risk of hybrid birds), after watching it for perhaps three minutes, I backed away to retrieve my bridge camera to obtain some record shots.

I snuck back into the house and told my wife Janet about the bird. I approached the tree where I had last seen the bird (from the other side of our front garden), but typically it was no longer there. I therefore headed back into the house assuming it might have been drawn to the feeders with the sparrows and Chaffinches. But after five minutes of us both watching, it was clear that this was not the case. Panicking now, I headed back outside

and, fortunately, the bird was extremely vocal, and I quickly picked it up calling from our streamside willows. It was not visible however from my position, so I recorded the calls by camera-video and then headed upstairs in the house to view the willows from our upstairs windows. Despite the absence of leaves on the trees, the bird was simply not visible from inside the house, so I went outside again and approached the streamside willows from the adjacent field. The bird was still calling from an unseen perch and then flew up into taller trees at the back of our garden, where finally I could view it discretely from inside the garden. For the next ten minutes or so, I watched the bird closely at some ten metre range, recording plumage and call details and took several photos and videos, as it perched in the tree and called continuously. It was partially obscured by branches at first, but it then flew up into the more well-spaced branches of a sycamore. It was at this point that I noticed it was carrying a BTO-type metal ring on its right leg.

I looked in particular for any hint of yellow tones in the plumage to check for possible hybrid Yellowhammer traits. The background colour of the underparts was largely cold white below including on the vent and there was equally no hint of yellow on the head. The outer fringes of all the primaries on the closed wing were cleanly white, whilst the inner fringes of one or two of the primaries could appear to show a warmer slightly buffy-yellowish tint at times. The large amount of black on the crown sides, throat, and area above and behind the eye, plus the whitish dark-bordered oval on the ear-coverts indicated this to be a male bird, whilst the lack of white on the central crown stripe, presence of a whiter patch in the centre of the throat, and rather pointed-tipped tail feathers indicated it to be in first-winter plumage. I took more photos and then headed inside to make sure that Janet saw the bird too, which she did. I took more shots through the lounge window, as this was a closer vantage point to the bird and then went out again to further photograph the bird from a different position on the other side of the house. At about 11:15 hrs, the bunting took off, calling as it did so, and headed purposefully NE flying quite high over our neighbour's trees. I followed it but lost it behind the trees, and despite much searching that day and the following day, it was never seen again. Throughout the observation, the bird was not seen to feed at all and simply moved between perches in the trees, calling almost continuously.

Plate 205. First-winter male Pine Bunting showing metal ring on the right leg, Balephuil, Isle of Tiree, Argyll, 29 November 2020. © *John Bowler*

A Pine Bunting identification article in *Dutch Birding* (Vol. 25, 2003) states that an apparent Pine Bunting that shows a yellowish tinge to some of the primary fringes, but otherwise only shows Pine Bunting features, can still be treated as a Pine Bunting, and, if indeed a hybrid, then such a bird will likely be at least a second- or third-generation backcross and the Yellowhammer genes so diluted as to not significantly impact the individual's overall genetic complement. Other Scottish Pine Buntings that showed similar limited yellowish tints to the primary fringes have recently been accepted as such (e.g., see Breaks 2009), so I was therefore happy to submit this record as a first-winter Pine Bunting to BBRC. Remarkably, following on from the Yellow-bellied Flycatcher in September, and the Dusky Warbler and Hume's Warbler in October, this was the fourth new species for Argyll to have turned up in our garden in autumn 2020.

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Citrine Wagtail, Stannochy Quarry, 24th April 2021 – the first Angus & Dundee record

C. McGUIGAN & D. BANISTER

On 24 April, Chris McGuigan (CM) received a text message from Duncan Banister (DB) to say he'd just found and lost a 'Yellow Wagtail' at an Angus site we both know well: Stannochy Quarry, which lies just to the west of Brechin. I ended our exchange by asking him not to delete the photos until he was sure it wasn't a Citrine Wagtail and made a mental note to visit the site soon. DB did not have a functioning email address to send images from.

Plate 206. Citrine Wagtail, Stannochy Quarry, Angus & Dundee, 24 April 2021. © *Duncan Banister*

I managed to visit him on 2 May and was astonished when he put a distant photograph onto his computer screen - despite being small and slightly blurred, I could see, even at ten paces distance, that it clearly depicted a male Citrine Wagtail!

Duncan's account of finding the bird

I was having a look along the shoreline of the quarry pool for waders when I saw what I presumed was a Grey Wagtail 100 m away. I routinely use my 4WD vehicle as a 'hide' along a rough track. Initially, I ignored it and continued driving slowly looking among the rushes for waders. I next looked at the wagtail from a range of 40 m or so and thought that it was very yellow. Looking through binoculars I figured it was a Yellow Wagtail and decided to creep closer and take some pictures. From *c.* 30 m range it then flew 70 m further along. I kept moving forward and stopped 45 m from it to take the first photo through the windscreen. It then started running towards the pond (it didn't stop till it was at the water's edge) where I photographed it. I got a couple of pictures before it flew up on to the fence 100 m away. It sat there a few seconds (allowing me one more photo) before flying back to the roadside shoreline. I drove around to the road to look from there but couldn't find it. I then parked in the farmyard and walked around the pool looking for it but couldn't relocate it, as far as I know it was never seen again. It was on view for a total of around four minutes (images timed 14:49 hrs–14:52 hrs).

Although it was never seen again, Duncan's photographs speak for themselves...

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SCOTTISH BIRD SIGHTINGS

1 April to 30 June 2021

S.L. RIVERS

Records in Scottish Bird Sightings are published for interest only. All records are subject to acceptance by the relevant records committee.

The following abbreviations for recording areas are used: Angus & Dundee - A&D; Argyll - Arg; Ayrshire - Ayrs; Borders - Bord; Caithness - Caith; Dumfries & Galloway D&G; Highland - High; Lothian - Loth; Moray & Nairn - M&N; North-East Scotland - NES; Outer Hebrides - OH; Perth & Kinross - P&K; Shetland - Shet; Upper Forth - UF.

A very good period for variety and numbers of rare and scarce species, particularly on the Northern Isles. It brought the highest ever spring total of Golden Orioles, part of a large influx into Britain, and another good arrival of Rose-coloured Starlings in June, when a Long-tailed Skua again lingered on Shetland.

Black Brant: one at Broadford Bay Skye 27–29 April - first for Highland if accepted. **Grey-bellied Brant:** a bird showing characteristics of this form was at Wester Dalziel/Culloden (High) from 2020 to 4 April. **Todd's Canada Goose** (form *interior*): one was at Balranald RSPB Reserve, North Uist (OH) on 12–20 April. **Cackling Goose** (form *hutchinsii*): two were at Balranald RSPB Reserve, North Uist (OH) still to 11 April, with another on 20 April; one was at Udale Bay RSPB Reserve (High) on 16–22nd, then at Nigg Bay (High) on 29 April, and one at Loch of Strathbeg RSPB Reserve (NES) on 21–22 May. **Snow Goose:** two white-phase birds were at Loch of Strathbeg RSPB Reserve (NES) on 2 April; one at Loch Tiumpan, Lewis (OH) on 11–21 April. In May larger flocks of unknown origin birds were reported - 21 at Barvas, Lewis (OH) on 8th; 16 at Lochgilphead (Arg) on 9th, plus groups of up to four ringed birds on the Western & Northern Isles. **Taiga Bean Goose:** one was at Aikerness, Evie, Mainland (Ork) on 13 April. **Tundra Bean Goose:** singles were on Fair Isle still to 13 April; at Errol (P&K) on 10–11 April, and at Carnwath (Clyde) on 20–21 April. **Egyptian Goose:** one was at Letham Pools (Fife) on 28–29 May. **Ruddy Shelduck:** one was still at Gilmourton, near Strathaven (Clyde) to 6 April.

American Wigeon: single drakes were at Loch of Spiggie, Mainland (Shet) from March to 22 April, and at Chapel Rosen Bay, near Ardwell (D&G) on 5 April. **Green-winged Teal:** single drakes were at Tain Links (High) still to 19 April; at Ardmhor ferry terminal, Barra (OH) still to 10 April; on Gretchen Loch, North Ronaldsay (Ork) still to 19 April; at Inganess Bay, Mainland (Ork) on 7 April; at Blairbowie (Ayrs) on 7–15 April; at Riverside Nature Park, Dundee (A&D) on 4–8 May, with probably the same at Letham Pools, Collessie (Fife) on 12 May, and at Loch Bhrusda, Berneray (OH) on 13 May. **Ring-necked Duck:** single drakes were still at Bingham's Pond/ Victoria Park, Glasgow (Clyde) to 23 April; at Martnaham Loch (Ayrs) to 17 April; a drake & two females on Tiree (Arg) still to 23 April; a female at Beveridge Park, Kirkcaldy(Fife) on 6 April; a drake at Loch Oire, near Elgin (M&N) on 7–20 April, and 28 May into June; a female at Cameron Loch (Fife) again on 9–24 April; at Rhynd Lochs, Carsebreck (P&K) on 10–13 April; two drakes and a female at Loch of Skene (NES) on 18 April; a female at Letham Pools, Collesssie (Fife) on 30 April; a drake on Mainland (Shet) at Loch of Hilwell on 18–22 May; nearby at Loch of Spiggie on 24th, then Loch of Brow on 25 May into June.

King Eider: single 2cy drakes were off Papa Westray (Ork) on 1–2 April; off Uyeasound, Unst (Shet) on 23–25 April; an adult drake at the Ythan Estuary (NES) from 1 May to 21 June; one flew past Burghead (M&N) on 2 May; a female at Loch Fleet (High) on 14–18 May; a drake flew past Chanonry Point (High) on 20 May; one was at Ireland/St Ninian's Isle, Mainland (Shet) on 22–24 May; a 2cy drake near Baltasound, Unst (Shet) on 4–7th and 29 June into July, and Haroldswick, Unst on 7 June; at Rerwick Sands, Mainland (Shet) on 4 June; a 2cy drake off the Isle of Bressay (Shet) on 23 June, and an adult drake off Murcar (NES) on 27 June. **Surf Scoter:** a drake remained off Hatston Pier, Mainland (Ork) to 1 April; two drakes in the Sound of Taransay, Harris (OH) still to 22 April; a drake and a female remained off Musselburgh (Loth) to 10 May, with four (three drakes) on 7 April; two still off Embo (High) to 5 April; two drakes were still off Ferny Ness/Gosford Bay (Loth) to 25 April, with three on 16 April and one to 1 May; a drake flew past Lossiemouth (M&N) on 4 April; a drake was off Rattray Head (NES) on 13–19 April; two drakes were in Aberlady Bay (Loth) on 25 April, and two adult drakes off Murcar/Blackdog (NES) on 1–14 May. **White-winged**

Scoter: the returning drake was off Musselburgh/Fisherrow (Loth) to 10 April. **Smew:** single redheads were at Gadloch (Clyde) still to 2 April; at Hogganfield Loch, Glasgow (Clyde) again on 3–17 April; at Loch Watten (Caith) on 7 April; at Devenmouth/Cambus (UF) on 10–15 April; at Loch of Skene (NES) on 12–18 April; at Bishop Loch, Glasgow on 15 April, and two (one drake) at Loch Riaghain, Tiree (Arg) on 31 May - first on the island for over 100 years. **Hooded Merganser:** single adult drakes (unknown origin) were at Loch of Kinnordy RSPB Reserve (A&D) on 3rd and 7–10 May, and at Stanevatstoe Loch, near Sandness, Mainland (Shet) on 8–16 May.

White-billed Diver: over 60 noted in April, mostly from M&N coast/NES north coast and Northern Isles, with peaks of seven off Cullen (M&N) on 15th and 11+ off Portsoy (NES) on 16th, with one off Aberlady Bay/Ferny Ness (Loth) on 14–17th. In May about 30 present, again mostly at M&N/NES and Northern Isles, with peaks of four adults at Port Nis/Skigersta, Lewis (OH) on 2nd, three in South Nesting Bay, Mainland (Shet) on 2–7th and three off Lossiemouth (M&N) on 9th. In June singles were in South Nesting Bay on 2–20th, with two there on 6th; off Port Nis on 6–9th; at Brough of Birsay, Mainland (Ork) on 16–22nd, and off Embo (High) on 25 June. **Cory's Shearwater:** one flew south past White Sands Bay, near Dunbar (Loth) on 30 June. **Pied-billed Grebe:** the adult male was still at Loch Feorlin, near Lochgilphead (Arg) throughout the period. **Spoonbill:** About 10 in April, all singles from Lothian/Clyde to Shetland. At least 15 in May from Borders to Shetland with peaks of three at Liddel Loch, South Ronaldsay (Ork) on 25–27th, up to three at Loch of Strathbeg RSPB Reserve/Ythan Estuary/Meikle Loch/Cruden Bay from 10–23rd, and two on North Ronaldsay (Ork) on 31 May. In June at least five reported with 1–3 at Loch of Strathbeg RSPB Reserve on 13–25th, and one still into July; and singles on South Ronaldsay on 1–2nd, and near Tullibody Inch (UF) on 3 June. **Great White Egret:** one was still at Castle Loch LNR, Lochmabben (D&G) on 1 April; singles were at The Hirsel, Coldstream (Bord) on 5 April; at Lochinver (High) on 15 April; near Stromness (Ork) on 25 April; at Dounby/Loch of Banks, Mainland (Ork) from 27 April to 7 May; at The Wilderness GP (Fife) on 10 May; at Munlochy Bay (High) on 25–27th; at Duntulm Castle, Skye (High) on 30 May; at Loch of Strathbeg RSPB Reserve (NES) on 2–25 June; at Lochmaddy, North Uist (OH) on 6–8 June, and at Blathaisbhal, North Uist on 12 June.

Short-toed Eagle: one was at a private and sensitive site (High) on 20 June - first Scottish record if accepted. **Pallid Harrier:** one was on Fair Isle on 12–14 May; presumed same flew over North Ronaldsay (Ork) on 15 May, and a juvenile was at an undisclosed site in Aberdeenshire (NES) on 2 June. **Black Kite:** one was on Papa Westray (Ork) then Westray (Ork) on 17 April; presumed same at Heddle, Mainland (Ork) on 25 April; singles were at Tarbert, Harris (OH) on 3 May; at Collieston (NES) on 4 May, then at Cotehill /Meikle Loch /Ythan Estuary /Pitmedden (NES) on 5–13 May; on Fair Isle on 16th; at Glenelg, Skye (High) on 17 May; on North Ronaldsay (Ork) on 17th; at Torness, Inverness (High) on 26th; at Clachnaharry (High) on 28 May; at Ballater (NES) on 16 June, and one flew over Caerlaverock WWT Reserve (D&G) on 23 June. **Rough-legged Buzzard:** singles were at Highland Wildlife Park, Kincraig (High) on 9 April; at Dava, near Grantown-on-Spey (High) on 22 April; near Glenree, Isle of Arran (Clyde Islands) on 25 April; at Glen Isla (A&D) on 29 April; at South Nesting, Mainland (Shet) on 16 May; near Laxfirth, Mainland (Shet) on 26–27 May; at Norwick, Unst (Shet) on 30 May, and same over Haroldswick, Unst on 1 June. **Crane:** two flew over Holborn Head (Caith) on 15 April; one at Loch of Kinnordy RSPB Reserve (A&D) on 17 April; three flew over Highland Wildlife Park, Kincraig (High) on 18th; three over Mosstodloch (M&N) on 19th; one at Loch of Banks, Mainland (Ork) on 27–29 April; one at Loch Suardal, Dunvegan, Skye (High) on 1 May; two at Ringasta, Mainland (Shet) on 3–4 May; one at Treshnish/Glengorm, Mull (Arg) on 4–7 May; two at Bakkasetter, Mainland (Shet) on 4 May; three at Loch Doon (Ayrs) on 5 May; two at Cotehill Loch (NES) on 5 May; two at Loch of Strathbeg RSPB Reserve (NES) on 6th & 18 May; one flew over Haroldswick, Unst (Shet) on 13 May; one flew over Sanna Bay (High) on 16th; two at Meikle Loch (NES) on 16 May; two flew over Fetlar (Shet) on 31 May, and one at Loch Boom, Inverlael (High) on 3 June.

Avocet: one was at Loch of Strathbeg RSPB Reserve (NES) on 17 April; two were at Seafield Pond /Belhaven Bay (Loth) on 19 April; five at Musselburgh (Loth), then at Gosford Bay (Loth) on 20th; one at Swartmill Loch, Westray (Ork) on 24–25th; three at Loch of Strathbeg on 27th, with two still on 30 April; two at Findhorn Bay (M&N) on 1–2 May; two flew past Balranald, North Uist (OH) on 6 May; two at Loch Barvas, Lewis (OH) on 8–9 May; one on Stronsay (Ork) on 12 May; three flew north past Fife Ness (Fife) on 16 May, and one was at Loch Bee, South Uist (OH) on 26–28 May. **Temminck's Stint:** singles were on North Ronaldsay (Ork) on 14 May; on Westray (Ork) on 17 May; at Loch of Strathbeg RSPB Reserve (NES) on 18–21st and 30 May to 2 June; at Rigifa Pool, Cove (NES) on 22–23 May; at Sullom Voe, Mainland (Shet) on 3–4 June; on Out Skerries (Shet) on 5 June; on Foula (Shet) on 5th,

and one again at Rigifa Pool on 14 June. **Pectoral Sandpiper:** singles were near Baltasound, Unst (Shet) on 1 June; at Newbiggings, Sanday (Ork) on 2–3 June; at Loch of Swartmill. Westray (Ork) on 9–12th, and on St Kilda (OH) on 29 June. **Grey Phalarope:** one flew over North Ronaldsay (Ork) on 19 June, and one over Boddam, Mainland (Shet) on 20 June. **Spotted Sandpiper:** a first-winter was at Croy, near Maidens (Ayrs) from 2020 to 23 April, and one at Tyninghame (Loth) on 1–4 May. **Lesser Yellowlegs:** one was at Grutness, Mainland (Shet) on 6–7 June.

Plate 207. Lesser Yellowlegs, Grutness, Shetland, 7 June 2021. © *Rebecca Nason*

Sabine's Gull: one flew past Lossiemouth (M&N) on 7 April, and one was off Skigersta, Lewis (OH) on 25 June. **Bonaparte's Gull:** 2cy birds were at St John's Loch (Caith) on 1st & 7 May, and at Dunnet Bay (Caith) on 1–20 May: at Cleat, Barra (OH) on 13–17 June, and at Norwick, Unst (Shet) on 23 June into July. **Mediterranean Gull:** remains much under-reported away from the Firth of Forth. **Ring-billed Gull:** a 3cy bird was at Cockmuir Bridge (Loth) on 6 April, with probably the same at Nine Mile Burn, near Penicuik (Loth) on 9th; an adult was at Seton Sands (Loth) again on 8 April; a 3cy at North Bay, South Uist (OH) on 16 April, and a 2cy bird on Foula (Shet) on 3 June. **Glaucous Gull:** about 40 reported in April, mostly singles from Arbroath (A&D) and Tiree (Arg) to Shetland, with a high count of four at Burrafirth, Unst (Shet) on 10th. About 50 in May, from Dunbar (Loth) and Greenock (Clyde) to Shetland, mostly singles, except for two at Clettreval, North Uist on 7th, and at Loch Sandary, North Uist on 20–27 May. In June at least 16 reported, from New Deer (NES) and Lendalfoot (Ayrs) to Shetland, all singles except for two at North Boisdale, South Uist (OH), and at Balormie, near Lossiemouth (M&N) on 21 June. **Iceland Gull:** about 110 in April, from Shetland to Musselburgh (Loth) and Maybole (Ayrs), mostly singles but with a high counts of four at Scrabster (Caith) on 2nd. In May, about 70, mostly singles from Shetland to Fort William (High), Stirling (UF) and Dunbar (Loth) but with a high count of three at Bigton, Mainland (Shet) on 6th. About 12 reported in June, mostly singles, from Shetland to Boddam (NES) and Stoneybridge, South Uist, but with a high count of two at Durness (High) on 5th, and at the Lossie Estuary (M&N) on 19 June. **Kumlien's Gull:** an adult was at Shetland Catch fish factory/Gremista, Lerwick (Shet) on 24 April to 6 May. **Caspian Gull:** a 2cy bird was near Rosebery Reservoir/Cockmuir/Howgate (Loth) on 6–10 April. **Yellow-legged Gull:** a 2cy bird at Leven (Fife) on 10 May. **Gull-billed Tern:** one was at Loch a' Phuill, Tiree (Arg) on 11 May. **White-winged Black Tern:** one was at Loch Spynie (M&N) in early June.

Pomarine Skua: an extremely poor showing with just five reports- singles flying past Stevenston (Ayrs) on 9th and 25 May; two at Dunnet Bay (Caith) on 27 May; one in Hoxa Sound, South Ronaldsay (Ork) on 28 May; and one *c.* 5 miles east of St Kilda (OH) on 9 June. **Long-tailed Skua:** a poor showing on passage with one off Ard an Runair, North Uist (OH) on 17 May, and 19 past there on 18 May; an adult lingered at Boddam, Mainland (Shet) on 23–24 May; singles were over Skaw, Unst (Shet) on 25 May; at Toab, Mainland (Shet) on 25th; nearby at Loch of Spiggie, Mainland (Shet) on 26 May; past Tarbat Ness (High) on 1 June; at Boddam again on 1 June; near Reay, Sandside Bay (Caith) on 3 June; at the Lossie Estuary (M&N) on 8th; at Boddam/Loch of Clumlie again on 9–11th, and 15 June into July; three were at Norwick, Unst (Shet) on 10th; one at sea *c.* two miles south of Sumburgh, Mainland (Shet) on11th; one flew past Melvaig (High) on 12th; one was near Laxfirth, Mainland (Shet) on 13th, and one off South Walls, Hoy (Ork) on 26 June. **Brunnich's Guillemot:** one was off North Ronaldsay (Ork) on 9 April.

Turtle Dove: singles were at Polkemmet CP (Loth) on 1 May; near Loans (Ayrs) on 2 May; at Nunton, Benbecula (OH) on 14–15 May; at Scourie (High) on 15–19th; on North Ronaldsay (Ork) on 21st; at Polmont (UF) on 22nd; at Culkein (High) on 27th; one at Galtrigill, Skye (High) on 31 May; near Laide (High) on 1 June; at Cambuskenneth (UF) on 2 June; at Sumburgh Head, Mainland (Shet) on 6th; on Fair Isle on 6–7th; on North Ronalsay on 12th, and near South Dell, Lewis (OH) on 23 June. **Snowy Owl:** an adult

female was still on Hirta, St Kilda (OH) into July; a 2cy female at Mull Head, Papa Westray (Ork) on 8–15 May; a female at Hermaness, Unst (Shet) on 29–31 May; a female at Baltasound. Unst on 18–19 June, and a male near Ronas Hill, Mainland (Shet) on 22–26 June. **Nightjar:** singles were on North Ronaldsay (Ork) on 26–29 May, at East Denwick, Deerness, Mainland (Ork) on 27 May; on Fair Isle on 3 June; at Berriedale, Hoy (Ork) on 10 June, and on North Ronaldsay on 15 June. **Bee-eater:** singles were at Ham, Foula (Shet) on 20 May; at Haroldswick, Unst (Shet) on 22nd & 28 May; at Norwick, Unst on 23–27th and 31 May; at Loch of Trondavoe, Mainland (Shet) on 30th; at Faraid Head, Balnakiel (High) on 30th; at Smoo Cave, Durness (High) on 30 May; 10 were reported near Peterhead (NES) on 5 June; one at Big Sand, near Gairloch (High) on 9 June; one over Hundland, Papa Westray (Ork) on 15th, and one on Fair Isle on 15 June. **Hoopoe:** singles were at Loch Laggan (High) on 15 April; in Inverness (High) on 24 April; at Whiteness Head (High) on 24th; at Fiscavaig, Skye (High) on 28–30 April; at Nethybridge (High) on 10 May, and on Fair Isle on 11–12 May. **Wryneck:** singles were on Eigg (High) on 14 April; North Ronalsay (Ork) on 23–30 April and 9th and 11 May; on Fair Isle on 9th and 11 May; at Symbister, Whalsay (Shet) on 9th; Cullivoe, Yell (Shet) on 10th; Geosetter, Mainland (Shet) on 12th; Isbister, Whalsay on 13th; at Scatness, Mainland (Shet) on 13th; on Fair Isle on 17th, 21–23rd and 27 May to 1 June; at Ireland, Mainland (Shet) on 19–21st; on North Ronaldsay on 23 May, and at Gutcher, Yell (Shet) on 7 June. **Hobby:** singles were at Kilminning, Crail (Fife) and Kinghorn (Fife) in early May; at the Leys Estate, Inverness-shire (High) on 29 May; at Skaw, Unst (Shet) on 2 June; at Laide (High) on 5 June; at Loch Spynie, near Elgin (M&N) on 7 June; at Loch Fleet (High) on 9th; near Prestwick (Ayrs) on 10 June; near Melvich (High) on 12 June; at Caerlaverock WWT Reserve (D&G) on 18 June; at Elgin on 22 June, and at Lochmaddy, North Uist (OH) on 22 June.

Red-backed Shrike: At least 15 in May, from Borders to Shetland, all singles except for three on Fair Isle on 28th, and two on Out Skerries (Shet) on 29 May. In June about 50 noted, from Fife to Shetland, all singles except for five on Fair Isle on 3rd, and two on Out Skerries, and on Fetlar (Shet) on 4 June, and two at Geosetter, Mainland (Shet) on 5 June. **Lesser Grey Shrike:** one was at Skaw, Whalsay (Shet) on 3 June. **Great Grey Shrike:** singles were at Hill of Fare, near Banchory (NES) on 13 April; near Craigellachie (M&N) on 2 May, and on North Ronaldsay (Ork) on 25–31 May. **Woodchat Shrike:** a female was on the Isle of May briefly on 3 June; one near Funzie, Fetlar (Shet) on 4–8 June; one on Papa Westray (Shet) on 5–6th; at Corrimony RSPB Reserve (High) on 10–11th; at Ardmore Point, near Cardross (Arg) on 12th, and at St Abb's Head (Bord) on 13 June. **Golden Oriole:** singles were on Papa Westray (OH) on 10 May; at Baron's Haugh RSPB Reserve (Clyde) on 15–18 May; near Fleck, Mainland (Shet) on 16th; on Fair Isle on 24th; at Hestily, South Ronaldsay (Ork) on 25th; on North Ronaldsay (Ork) on 28–29th; at Baltasound, Unst (Shet) on 28th; at Likisto, Harris (OH) on 28th; at Norwick, Unst on 28th; near Aith, Fetlar (Shet) on 30th; at Grindigar, Mainland (Ork) on 31 May; at Kergord, Mainland (Shet) on 31 May; at Sandwick, Mainland (Shet) on 2 June; on Bressay (Shet) on 2 June; at South Dell, Lewis (OH) on 2nd; at Ocraquoy, Mainland (Ork) on 2nd; at Swining, Mainland (Shet) on 4th; at Baltasound, Unst on 4th; at Peterculter (NES) on 6th; on Trondra (Shet) on 6th; at Hillswick, Mainland (Shet) on 7th; at Brae, Mainland (Shet) on 8th; on Out Skerries (Shet) on 8th; on Fair Isle on 15th, and one at Vidlin, Mainland (Shet) on 18 June.

Plate 208. Red-rumped Swallow, Brae, Shetland, 11 June 2021. © *Rebecca Nason*

Waxwing: few reports in April, with the last birds being singles at Latheronwheel (High) on 23 May, and at Durness (High) on 30 May. **Shore Lark:** one was at Mull Head/Wheelies Tang, Papa Westray (Ork) on 13–15 May, and one at Norwick, Unst (Shet) on 23–26 May. **Short-toed Lark:** one was on Papa Westray (Ork) on 25 April, and one at Lamba Ness, Unst (Shet) on 23–29 June. **Calandra Lark:** one was on Fair Isle on 8–15 May, and another on Fair Isle on 29 May to 11 June. **Red-rumped Swallow:** one was at Grogarry Lodge, South Uist

Plate 209. Sardinian Warbler, Sumburgh, Shetland, 29 May 2021. © *Rebecca Nason*

(OH) on 13 May; one on North Ronaldsay (Ork) on 31 May to 1 June; two at Vidlin, Mainland (Shet) on 9–11 June, and then at Brae, Mainland (Shet) on 11 June.

'Siberian Chiffchaff' (*P.c. tristis*): singles were noted on Fair Isle on 19 April and 3rd and 12 May; on the Isle of May on 27–28 April, and on North Ronaldsay (Ork) on 30 April to 2 May. **Green Warbler:** one was trapped and ringed on Fair Isle on 23 June - 3rd Fair Isle and 4th Scottish record. **Greenish Warbler:** one was on the Isle of May on 23–27 May. **Great Reed Warbler:** singles were on Fair Isle on 20–21 May; at Sumburgh, Mainland (Shet) on 4 June, and at Quendale, Mainland (Shet) on 7–9 June. **Paddyfield Warbler:** one was at Cunningsburgh, Mainland (Shet) on 3 June. **Blyth's Reed Warbler:** singles were on North Ronaldsay (Ork) on 28 May and 3 June; on Coll (Arg) on 31 May; on Fair Isle on 1 June; on Out Skerries (Shet) on 3 June; at New Grunasound, East Burra (Shet) on 4th; two on Foula (Shet) on 5th; at Ollaberry, Mainland (Shet) on 5th; on St Kilda (OH) on 11th; at Heathfield Woods, Dunnet Head (Caith) on 13–14th, and at White Sands Bay, Dunbar on 14 June. **Marsh Warbler:** singles were at Skaw, Whalsay (Shet) on 25 May, and at Scousburgh, Mainland (Shet) on 31 May. About 50 in June - all singles on the Northern Isles, except for one at Dunnet Head (Caith) on 3–5th; higher counts of two on Isle of Bressay (Shet) and North Ronaldsay (Ork) on 3rd; four on Fair Isle on 3–5th, with two on 7th, three on 8–9th, and two on 10th; two at Quendale, Mainland (Shet) on 4th; two on Out Skerries (Shet) on 4th; two at Halligarth, Unst (Shet) on 5th; two on Fair Isle again on 16th, and two at Norwick, Unst (Shet) on 19 June. **Icterine Warbler:** singles were at Craig David Croft, Inverbervie (NES) on 21 May; at Kilminning (Fife) on 22–24 May, with two on 22nd; then over 40 to the end of May, all singles on the Northern Isles except for two on Fair Isle on 26th; three at Swining, Mainland (Shet) and two at Valyie, Unst (Shet) on 27th; three on Fair Isle on 27th, two still there on 28th; two at Sandwick, Mainland (Shet) on 28th, and two on Papa Westray (Ork) on 29 May. About 30 in June, all singles on the Northern Isles to 26th, except for one singing at Innerleithen (Bord) on 19–20 June, and two on Fair Isle on 2–3rd and 5th; three on Out Skerries (Shet) on 3rd, with two still on 4–5th, and four on Isle of Bressay (Shet) on 4 June. **Sardinian Warbler:** one was at Sumburgh, Mainland (Shet) on 29 May to 1 June. **Eastern Subalpine Warbler:** one was on Foula (Shet) from 25 April to 8 May; one on Fair Isle on 28 May and one at 'the Manse', Barra (OH) on 30 May. **Subalpine Warbler sp.:** birds not unequivocally assigned to species level were one at Hametoun, Foula (Shet) on 17 May; a female at Haroldswick, Unst (Shet) on 31 May to 2 June, and at Norwick, Unst on 3rd.

Rose-coloured Starling: a large widespread arrival occurred in June, starting with single adults at Northton, Harris (OH) on 1 June; at Pennyghael, Mull (Arg) on 2

June; at Balvicar, Seil (Arg) on 2–5th; at Breibhig, Barra (OH) on 3rd, and Borve, Barra from 3 June. Thereafter noted from a further 72 sites from Eyemouth (Bord) and Stranraer (D&G) to Norwick, Unst (Shet) but mostly in the north and west. Generally singles present for short stays, with higher counts of two at 11 sites and a peak of three from Fair Isle on 6 June. Longest stays were one at Breibhig, Barra (OH) from 3–25 June, and at Norwick, Unst (Shet) from 5–19 June at least. **Bluethroat:** one was at Barns Ness (Loth) on 22–23 May; two on Out Skerries (Shet) on 24 May; one at Deerness on 24–25th; one at Collieston(NES) on 25 May; two at Skaw, Unst (Shet) on 25th; singles at Mol Mor, Ardivachar, South Uist (OH) on 26–27th; on Fair Isle on 27 May; on Foula (Shet) on 28 May to 3 June, and one on Out Skerries on 3 June. **Thrush Nightingale:** one was at Grutness, Mainland (Shet) on 3 June. **Nightingale:** one was on Fair Isle on 9–11 June. **Red-flanked Bluetail:** a 2cy female was trapped at Gorie, Bressay (Shet) on 3 June. **Red-breasted Flycatcher:** one was on Fair Isle on 6 June, and one at Quendale, Mainland (Shet) on 7 June. **'Eastern Stonechat' sp.:** a male was at Tresta, Fetlar (Shet) on 7 June.

Yellow Wagtail: two were at Skinflats RSPB Reserve (UF) on 26 April; one at Seafield Pond, Dunbar (Loth) on 7 May; two at Rigifa Pool, Cove (NES) on 13 May; one at Girdle Ness, Aberdeen (NES) on 22 May. **Blue-headed Wagtail (*M.f. flava*):** singles were at Skaw, Unst (Shet) on 17–18 April; at Tarbolton (Ayrs) on 23 April; at Devenmouth Pool, Clacks (UF) on 23 April; at Loch of Strathbeg RSPB Reserve (NES) on 27th; on Fair Isle on 28–29th; on North Ronaldsay (Ork) on 30 April to 1 May; at Tyninghame (Loth) on 5 May; at White Sands Quarry, Dunbar (Loth) on 6 May; on Papa Westray (Ork) on 11th; at Durness (High) on 16th; on Fair Isle on 17–19th and 28 May; on North Ronaldsay on 21 May, and at Fail Loch (Ayrs) on 5 June. **Grey-headed Wagtail (*M.f. thunbergi*):** singles were Garnock Floods, Irvine (Ayrs) on 12 May; at Hoswick, Mainland (Shet) on 14 May; at Meikle Loch (NES) on 15th; at Whinnyfold (NES) on 15th; at Loch of Strathbeg RSPB Reserve on18–21st; two on Fair Isle on 18th; singles were on St Kilda (OH) on 31 May to 2 June; on Out Skerries (Shet) on 1–3 June; on Fair Isle on 1–3 June; two on North Ronaldsay on 5–8 June, and one on Papa Westray (Ork) on 6 June. **'Channel Wagtail':** one was at North Berwick (Loth) on 12 May. **Citrine Wagtail:** singles were at Stannochy Quarry, Brechin (A&D) on 24 April - first record for Angus & Dundee; at Loch of Spiggie, Mainland (Shet) on 19 May, and on Fair Isle on 12–15 May. **Tawny Pipit:** one was on Fair Isle on 28 May. **Olive-backed Pipit:** one was on Fair Isle on 14 May. **Red-throated Pipit:** one was on Fair Isle on 8 May.

Common Rosefinch: singles were at Loch of Spiggie, Mainland (Shet) on 25 May; at Quendale, Mainland (Shet) on 25 May; at Vidlin, Mainland (Shet) on 26th; on Foula (Shet) on 28 May to 1 June; on Fair Isle on 29 May to 31 May, and on Bressay (Shet) on 30 May. At least 17 noted in June, mostly on Shetland, but also on Fair Isle, Skye (High), Blairgowrie (P&K) and Tiree and Helensburgh (Arg), all singles except for three on Fair Isle on 1st, and two there on 5 June. **Hornemann's Arctic Redpoll:** singles were at Voe, Mainland (Shet) on 1–15 April; at Brae, Mainland (Shet) on 13 April; at Stjoal, Foula (Shet) on 15th; at Cullaird House, Lochinver (High) on 15th, and on Fair Isle on 25–29 April. **Serin:** one was at Talmine, Tongue Bay (Caith) on 17 May - first for Highland if accepted. **Lapland Bunting:** at least 80 in April, predominantly on the Northern and Western Isles, but noted south to Kingsbarns (Fife) and Tiree (Arg). Generally five or fewer, but with highest counts of 14 at Tarbat Ness on 12th, and 27 at Balranald RSPB Reserve, North Uist (OH) also on 12 April. About 11 in May, with two still at Lionel, Lewis (OH) on 2nd; one on Fair Isle on 2nd, and two there on 4th; one at Crossapol, Tiree (Arg) on 7th; two on Papa Westray (Ork) on 8th; singles at Balranald RSPB Reserve, North Uist (OH) on 10th; on Fair Isle on 10–13th; at Loch Stiapabhat, Lewis (OH) on 11th, and at Ireland, Mainland (Shet) on 19–20 May. **Snow Bunting:** about 175 in April, mostly on the north mainland, but also from Shetland to Lothian and the Outer Hebrides, with higher counts of 24 at Dornoch (High) and 35 at Esha Ness. Mainland (Shet) on 9th; 21 at Tarbat Ness (High) on 10th, and 21 at Ronas Hill, Mainland (Shet) on 17 April. In May at least 30 birds reported, all from the Northern Isles except for two at Rattray Head (NES) on 24–27th and one at Scurrival, Barra (OH) on 22nd,, with a peak count of seven on Fair Isle on 6 May. The last report was of one on Fair Isle on 7 June. **Little Bunting:** singles were on Fair Isle on 25 April to 13 May, and at Sumburgh Head, Mainland (Shet) on 11 May. **Rustic Bunting:** singles were on Fair Isle on 2–3 May; at Ham, Foula (Shet) on 8–12 May; on the Isle of May on 21–22 May; on Fair Isle on 22–24th, with two present on 25–26th, three on 27–28th, and one on 29–31 May; at Geosetter, Mainland (Shet) on 23rd; two on Foula on 28th; singles at Loch of Melby, Mainland (Shet) on 31 May; at Quendale, Mainland (Shet) on 31 May; at Ham, Foula on on 4th and 7 June; at Hoswick, Mainland (Shet) on 5–6 June, and on Fair Isle on 7 June. **Black-headed Bunting:** a male was at Ardnamurchan (High) on 8 June. **White-throated Sparrow:** one was at Baltasound, Unst (Shet) on 18–19 May; one at Skaw, Unst on 22 May, and one was 'At Sea' seen from VOS Faithful ship *c.* 124 miles east of Peterhead (NES) on 28 May. **Dark-eyed Junco:** one was reported at an undisclosed location in East Lothian on 31 May.

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Scottish Charitable Incorporated Organisation **SC 009859**

PhotoSPOT **Plate 210.**

If you have never seen or heard Common Snipe display before it is well worth taking time just to observe and marvel at their aerobatics, before trying to take any photographs. This not only allows you to soak in the spectacle but also to get a feel for the manoeuvres they make, how quickly they dive and turn, and how tricky it is to follow the action if you are using binoculars.

When they enter a dive you will see them splay their tail feathers, the outermost feathers separate from the others and vibrate for a few seconds creating the characteristic warbling or 'drumming' sound. Expert birds, that produce the loudest drumming, tremble their wings during the dive amplifying the sound modulation.

Displaying Common Snipe can be very high up, cover a lot of ground and dive at random, so it is best to get them in-frame when they are distant, then try to keep them in-frame and fire bursts of shots when/if they come closer. You could use a tripod or monopod, though I find it easier to hand-hold my kit since the action can often be directly overhead.

Keeping them in-frame during a dive is the trickiest part, especially with a long lens, but if you can you may have enough shots from one dive to composite a sequence together as I have done here. Edit each shot in your usual way, then to make the composite you need to use one image as a base and manually, cut and paste birds from the other shots in the sequence on to the base image, positioning them to replicate the trajectory of the manoeuvre, or at least a trajectory that looks realistic.

The compositing process isn't always effective, and can be a bit tedious, but hopefully you will agree in this case the end result was worth the effort.

Equipment used: Sony A9, Sony FE 200–600mm G lens, Manual, ISO 800, 1/5,000 sec, f6.3.

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Featuring the best images posted on the SOC website each quarter, PhotoSpot will present stunning portraits as well as record shots of something interesting, accompanied by the story behind the photograph and the equipment used. Upload your photos now - it's open to all.